Journal of Physics D: Applied Physics
Volume 5, 1972

Volume 5
Pages 1–2324, L1–110
1972

Journal of Physics D

Applied Physics

Published by
The Institute of Physics
London and Bristol

Copyright © 1972 by the Institute of Physics and individual contributors. All rights reserved. Multiple copying of the contents or parts thereof without permission is in breach of copyright, but permission is hereby given to copy titles and abstracts of papers and names of authors. Permission is usually given upon written application to the Institute to copy illustrations and short extracts from the text of individual contributions, provided that the source (and, where appropriate, the copyright) is acknowledged.

Published by The Institute of Physics, 47 Belgrave Square, London, SW1X 8QX,
in conjunction with the American Institute of Physics

Printed in Great Britain by Adlard and Son, Ltd, Dorking. Set in 10/12 pt Times.

Journal of Physics D: Applied Physics

Honorary Editor

Professor A J Forty PhD DSc

Editorial Board

Professor G Carter PhD FInstP
D J Craik PhD
V S Crocker PhD
H G Jerrard PhD FInstP
Professor D H Parkinson DPhil FInstP
J Philibert (*France*)
Professor S A Ramsden DPhil
D R Sweetman PhD

Managing Editor

D G Fisher PhD FInstP

Assistant Editor

Mr D F Manley BSc

BLANK
PAGE

Contents

NO 1 JANUARY 1972

LETTERS TO THE EDITOR

L1 *A R Jones* · Scattering and emission of radiation by clouds of elongated particles
L4 *M A Nettleton* · Thermal ionization of soot particles in gases heated by reflected shocks to 2500 to 4000 K
L6 *S Rajapandyan and G R Govinda Raju* · Ionization current multiplication in a non-uniform electric field in dry air

PAPERS AND RESEARCH NOTES

Mathematical Physics
1 *A B Birtles* · Closed-form expressions for the magnetic field due to a single-layer cylindrical coil
6 *S Morsy and M M R Williams* · Neutron flux perturbations due to absorbing foils

Mechanics, Elasticity, Vibration, Acoustics
12 *J D Kester and G F Pickett* · Application of theoretical acoustics to the reduction of jet engine noise

Heat, Thermodynamics
28 *J H Neilson and R A Crawford* · Efficiencies of thermodynamic processes

Electrodynamics and Particle Optics
43 *K Kanaya and S Okayama* · Penetration and energy-loss theory of electrons in solid targets

Quantum Electronics, Quantum Optics
59 *D Andreou, V I Little, A C Selden and J Katzenstein* · The output characteristics of a *Q*-switched liquid laser system $Nd^{3+} : POCL_3 : ZrCl_4$

Optics
64 *V P Nayyar, B L Mehta and M C Dubey* · Resolution of a centrally obstructed circular aperture in partially coherent light (R)

Atomic and Molecular Physics
69 *M F Payne and A C Riviere* · Angular spread of hydrogen atoms formed by electron capture and dissociation of H^+, H_3^+ and H_3^+ in H_2, H_2O and C_8F_{16} at energies of 2·5 to 15 keV

Fluids, Plasmas and Gas Discharges
79 *J Lawton and P J Mayo* · The effect of secondary gas flow on the distribution of energy transfer from plasma torches
89 *J C Amson* · Electrode voltage in the consumable-electrode arc system
97 *R J Dewhurst, G J Pert and S A Ramsden* · Picosecond triggering of a laser-triggered spark gap
104 *A W Howatson and R D Rowe* · An arc column in forced axial convection
119 *I Paulus, R Holmes and H Edels* · Vacuum arc response to current transients
133 *C B Wheeler* · The performance of electrical fuses under impulsive conditions: I—DC supplies
141 *M J King and N D Waters* · The unsteady motion of a sphere in an elastico-viscous liquid
151 *M Sato* · Effect of a magnetic field on the floating double-probe method (R)

Structure and Mechanical Properties of Solids
155 *S C Jain, B B Sharma and B K Reddy* · Thermal conductivity of metals at high temperatures by the Jain and Krishnan method: VI—Rhodium
160 *S Hart and R W H Stevenson* · The elastic constants of manganese fluoride (R)

Electrical and Magnetic Properties of Solids
162 *D K Davies* · Carrier transport in polythene
169 *D Robson, F Y I Assabghy and D J E Ingram* · Some electronic properties of polyacrylonitrile-based carbon fibres

180 *T G Blaney and C C Bradley* · The Josephson junction as a frequency analyser and mixer of submillimetre radiation sources
185 *R Hill, D Richardson and S Wilson* · Ohmic contacts on semiconductors using indium amalgam (R)
188 *W N Honeyman and M K Lee* · Properties of mixed crystals of triglycine sulphate and selenate
193 *G P Srivastava, P C Mathur and Arun Kumar* · Microwave Faraday rotation in artificial dielectrics at room temperature
200 *R Carey and B W J Thomas* · The effect of inclusion energy on domain nucleation at inclusions in uniaxial materials
203 *D O'Kelly* · Flux penetration in a ferromagnetic material including hysteresis and eddy-current effects

Laboratory and Experimental Techniques
214 *J B Irving* · The effect of nonvertical alignment on the performance of a falling-cylinder viscometer

NO 2 FEBRUARY 1972

LETTERS TO THE EDITOR

L9 *S J B Reed : G L Fisher* · Comments on 'An investigation of electron probe microanalysis corrections in nickel–cobalt alloys'

PAPERS AND RESEARCH NOTES

Electromagnetism
225 *H M Barlow* · Measurements of dispersion in dielectric-loaded submarine telephone cable

Quantum Electronics, Quantum Optics
228 *I J Barton and D W Goodwin* · Continuous laser action in $YAlO_3$

Fluids, Plasmas and Gas Discharges
235 *P D Francis* · Multimode cavity for simultaneous plasma excitation and electron density measurements
241 *C H Gillen and R W Young* · Beam–plasma interaction and the low-pressure mercury hollow cathode discharge
253 *M M Kekez, M R Barrault and J D Craggs* · Spectroscopic investigation of the spark channel
266 *J Polman, J E van der Werf and P C Drop* · Nonlinear effects in the positive column of a strongly modulated mercury–rare gas discharge
280 *D W Williams and W T Williams* · Field-emitted current necessary for cathode-initiated vacuum breakdown
291 *I A Fleming, D R Gray and J A Rees* · The drift and diffusion of electrons in oxygen containing traces of hydrogen
297 *J Schweitzer and B R Jennings* · Transient scattering changes induced by pulsed sinusoidal electric fields
310 *B W Walsh* · Low-velocity flows through plasmas (R)
314 *J R Riley* · Axial electron density gradients in steady-state and modulated mercury positive columns (R)

Structure and Mechanical Properties of Solids
319 *A J Hunter* · On the distribution of asperity hieghts of surfaces
325 *H A Chedzey and D S Robertson* · A study of periodic crystal rotation reversal in melt growth
331 *H G Allen* · The strength of thin composites of finite width, with brittle matrices and random discontinuous reinforcing fibres
344 *R G C Arridge and M J Folkes* · The mechanical properties of a 'single crystal' of SBS copolymer—a novel composite material
359 *R A Hunt and B Gale* · A model of deadherence due to stresses in an elastic film
373 *P Stanley* · A determination of the effect of the relatively large strains in photoelastic pressure vessel models

386 *A R Patel and C C Desai* · Kinetics of the etching of dislocations in doped calcium fluoride single crystals (R)
390 *A R Patel and K John Mathai* · Etch hillocks on carbon faces of α SiC (R)

Electrical and Magnetic Properties of Solids
394 *M Kent* · Complex permittivity of protein powders at 9·4 GHz as a function of temperature and hydration
410 *D B Watson* · The elastic strength of Perspex as a function of voltage rise time
415 *J H Davis* · Energy changes in magnetization of ferromagnetics in low and moderate fields
440 *D C Hothersall, G A Jones and P J Grundy* · The detection of bubble domains in $YFeO_3$ by scanning electron microscopy
443 *S Chandra, H B Lal and K Shahi* · Thermoelectric properties of high-conductivity solid electrolyte KAg_4I_5 (R)

Spectroscopy and Optical Properties of Solids
446 *R V Joshi and T R Joshi* · Thermoluminescence of x-irradiated NaCl : Tl (R)
448 **Corrigenda**

NO 3 MARCH 1972

LETTERS TO THE EDITOR

L13 *T M Christmas* · Laser-induced self-focusing in ADP and KD*P
L17 *E Sacher* · The DC conductivity of poly(ethylene terephthalate) at elevated temperatures
L18 *J R Birch and R G Jones* · Submillimetre wave modulation by free carrier absorption in germanium

PAPERS AND RESEARCH NOTES

Mechanics, Elasticity, Vibration, Acoustics
449 *B Campbell, H K Messerle and A D Stokes* · Shock collision in preheated argon

Electrodynamics and Particle Optics
461 *F Watt* · The crossed-field injection of medium energy electrons into high homogeneous magnetic fields

Quantum Electronics, Quantum Optics
468 *J M Austin and A L S Smith* · Analysis of positive ions in CO_2 gas laser systems

Optics
476 *B J Brinkworth* · A scattering efficiency factor for radiative transport
481 *L E Drain* · Coherent and noncoherent methods in Doppler optical beat velocity measurement
496 *G D Holah and S D Smith* · Multi-element mesh interference filters for the infrared
510 *J V Champion, G H Meeten and M D R Tench* · Method of obtaining concurrent measurements of circular and linear birefringence (R)

Atomic and Molecular Physics
514 *J E Parr and J L Moruzzi* · Electron attachment in water vapour and ammonia

Fluids, Plasmas and Gas Discharges
525 *M R Barrault and A D Craig* · Magnetic diffusion into a moving cylindrical incompressible plasma
533 *D R Topham* · The characteristics of axial flow electric arcs subject to pressure gradients
542 *L E Virr, J Lucas and N Kontoleon* · The measurement of the ratio of diffusion coefficient to mobility for electrons at low E/p
555 *J D E Beynon* · An experimental comparison of two theories of non-equilibrium ionization in gases
562 *P C Drop and J Polman* · Calculations on the effect of supply frequency on the positive column of a low-pressure Hg–Ar AC discharge
569 *T Kelsey* · Measurements of prebreakdown current and x ray emission in vacuum

575 *E Kuffel, S Grzybowski and R B Ugarte* · Flashover across polyethylene and tetrafluoroethylene surfaces in vacuum under direct, alternating and surge voltages of various waveshapes
580 *P E Secker, C C Sanger and T J Lewis* · Behaviour of low-current arcs on moving electrodes
589 *D Bourgoin, E Volf et M Joly* · Mesure de la permittivité complexe relative en ondes centimétriques de liquides fortement polaires: Application à l'eau et au diméthylsulfoxyde
601 *J F Bitó and K G Antal* · On the breakdown phenomena of capacitive discharges (R)

Structure and Mechanical Properties of Solids
604 *D S Robertson* · Crystal growth from aqueous solution by the Bridgman method
609 *S K Chatterjee and S P Sen Gupta* · An integral breadth analysis for particle size and strain determinations in cold-worked FCC alloys

Electrical and Magnetic Properties of Solids
613 *P H Melville* · AC loss and flux instabilities in single-component and double-component type II superconductors
628 *J Sutton and D A Ward* · The determination of low-field critical current densities from magnetization data for Nb–25% Zr
639 *R Swami and B A P Tantry* · Effect of an intense magnetic field on the diffusion of minority carriers in semiconductors
647 *D L Pulfrey* · The electrical breakdown of solid dielectrics in non-uniform fields
656 *R V Bellau and A E Widdowson* · Some properties of reverse-biased silicon carbide p–n junction cold cathodes

Spectroscopy and Optical Properties of Solids
667 *D Kalymnios* · Linear electro-optic (Pockels) effect in m-nitroaniline ($C_6H_4(NO_2)NH_2$) (R)
670 *A M Stoneham* · Linewidths with gaussian and lorentzian broadening (R)

NO 4 APRIL 1972

LETTERS TO THE EDITOR

L23 *E R Pike* · The application of photon correlation spectroscopy to laser Doppler measurements
L25 *C H Gooch and H A Tarry* · Dynamic scattering in the homeotropic and homogeneous textures of a nematic liquid crystal
L29 *J R Bosnell and C B Thomas* · Switching in amorphous elemental semiconductors, Si and Ge

PAPERS AND RESEARCH NOTES

Mathematical Physics
673 *P L Hall* · Errors in the determination of ESR spin concentrations by numerical double integration (R)

Electromagnetism
676 *J H Davis* · Energy changes in magnetization of ferromagnetics and ferrimagnetics: an interpretation of three reported effects
681 *J H Davis* · Energy changes in magnetization of a nickel–silicon alloy

Quantum Electronics, Quantum Optics
686 *R Illingworth* · The effect of small concentrations of nitrogen on an argon *Z*-pinch laser and the measurement of the inversion ratio

Fluids, Plasmas and Gas Discharges
693 *P B Barber, D A Swift and B A Tozer* · The formation of rotating plasmas in a homopolar configuration
701 *J F Humphreys and J Lawton* · Arcs with free anode roots in the presence of gas flow and magnetic fields
710 *K R Hearne, S A Nixon and D Whittaker* · Axial temperature distributions along thin graphite electrodes
717 *M K Bevir* · The effect of conducting the pipe connections and surrounding liquid on the sensitivity of electromagnetic flowmeters

730 *J K Hepworth, R C Klewe and B A Tozer* · A model of impulse breakdown in divergent field geometries
741 *M S Naidu, A N Prasad and J D Craggs* · Electron transport, attachment and ionization in c-C_4F_8 and iso-C_4F_8
747 *T R Hewish and J E Brignell* · Experimental consequences of the EHD stability criterion for dielectric liquids
753 *C Pounder* · Electrification from salt water on heated metals (R)

Structure and Mechanical Properties of Solids
756 *T Terada* · Aluminium ionimpression onto gallium arsenide
767 *S Pehkonen, M Ahtee and O Inkinen* · Formation of mixed crystals in equimolar KCl–KBr powder mixtures
774 *I V K Bhagavan Raju, V Hari Babu and K G Bansigir* · Impurity-enhanced dissolution studies on NaCl crystals
777 *J L Chevalier, P Peguin, J Perez and P Gobin* · Frottement intérieur de l'aluminium très faiblement écroui
782 *C G Brown, N L Hancox and W N Reynolds* · Nondestructive testing of carbon-fire-reinforced plastics—a study of an ultrasonic resonance method
793 *C F Clement* · The distribution of path lengths through a porous material
799 *S Nichols* · A bismuth triple point at 41 kbar, 175°C

Electrical and Magnetic Properties of Solids
803 *A R Peaker and A Mottram* · Injection and quantum efficiencies of red-light-emitting gallium phosphide diodes
810 *D E Lacklison, J Chadwick and J L Page* · Photomagnetic effect in ferric borate
822 *T E Gallon* · The estimation of backscattering effects in electron-induced Auger spectra
833 *M J Chockalingam, K Nagaraja Rao, N Rangarajan and C V Suryanarayana* · Photoconductivity in thallous sulphide binder layers (R)

Spectroscopy and Optical Properties of Solids
837 *L F Gate* · Light scattering in microporous materials using a photon diffusion model
847 *S G Tomlin* · More formulae relating to optical reflection and transmission by thin films
852 *R E Denton, R D Campbell and S G Tomlin* · The determination of the optical constants of thin films from measurements of reflectance and transmittance at normal incidence

864 Corrigenda

NO 5 MAY 1972

LETTERS TO THE EDITOR

L33 *M Nashed* · Solution of the electromagnetic flowmeter equation
L37 *D J Craik and P V Cooper* · Derivation of magnetic parameters from domain theory and observation
L40 *E R Vance, H J Milledge and A T Collins* · The effect of heavy neutron irradiation on the electrical resistivity of diamond
L43 *G T Kanfer and R A Giblin* · Threshold conditions of TRAPATT operation

REVIEW ARTICLE

865 *K Hulls and P W McMillan* · Amorphous semiconductors: a review of current theories

PAPERS AND RESEARCH NOTES

Mechanics, Elasticity, Vibration, Acoustics

883 *L S Srinath and A V S S S R Sarma* · Effects of stress-induced optical activity in photoelasticity

Electrodynamics and Particle Optics

896 *P T Bolwijn and R A van Doorn* · On the selective erasure of cathodochromic image displays

Quantum Electronics, Quantum Optics
901 *R K Garnsworthy* · The pressure-dependent performance of a transversely excited pulsed CO_2 laser
904 *P R Selway and A R Goodwin* · The properties of double heterostructure lasers with very narrow active regions

Optics
915 *P B Coates* · Photomultiplier noise statistics

Nuclear Physics
931 *T D Beynon and J R Moon* · Thermal neutron transport near a moderator discontinuity using the method of weighted residuals—I. Theory

Fluids, Plasmas and Gas Discharges
950 *M Nashed and M A K Moustafa* · A method for induction velometry
956 *N Kontoleon, J Lucas and L E Virr* · The measurement of the ratio of radial diffusion coefficient to mobility and the amplification coefficient for electrons at high E/p
966 *A B Birtles and J R Travis* · A method for the computation of characteristics of a Townsend discharge
973 *J R Travis and A B Birtles* · Analysis of a hemispherical corona tube
983 *M S Naidu and A N Prasad* · Mobility, diffusion and attachment of electrons in perfluoroalkanes
994 *E H Pinnington and P H L Pang* · Magnetic enhancement of ionic spectra excited in the interrupted vacuum arc (R)

Electrical and Magnetic Properties of Solids
1000 *C Munakata* · Improvement of the β-conductive method of measuring electric field intensity in semiconductors by a pulsed electron beam
1005 *I M Green and P Hlawiczka* · Surface impurities and the superconducting-to-normal transition—theory
1016 *I M Green and P Hlawiczka* · Surface impurities and the superconducting-to-normal transition—experiments on tantalum
1027 *P K Pillai, K G Balakrishnan and T N R K Kurup* · A study of the electret properties of *Vateria Indica*
1031 *A S Hudson* · Substituted calcium–vanadium garnets as potential microwave materials
1038 *Y Awakuni and J H Calderwood* · Water vapour adsorption and surface conductivity in solids

Laboratory and Experimental Techniques
1046 *A E Curzon, R P Berman and T S Luhman* · A simple technique for removing (111) Cu or Ag single-crystal films from mica and their use in Moiré fringe electron microscope calibration specimens (R)

NO 6 JUNE 1972

LETTERS TO THE EDITOR

L47 *G Hooper* · Microwave measurement of electron density in a plasma column contained in a dielectric tube
L52 *G W Taylor: Y W Lam and E H Rhoderick* · Comments on 'Surface-state density by photovoltage measurements—II'

PAPERS AND RESEARCH NOTES

Electromagnetism
1049 *H M Barlow* · Screened surface waves of the dipole family in a coaxial waveguide

Quantum Electronics, Quantum Optics
1063 *J E Creeden, R M Fristrom, C Grunfelder and F J Weinberg* · A large-area differential laser interferometer for fire research

Fluids, Plasmas and Gas Discharges
1068 *E W Gray, J R Pharney and J A Augis* · Cathodic contact erosion due to short-duration gas breakdown arcs
1077 *A C Metaxas and J R Cozens* · The influence of metastable atoms and molecules on the re-ignition of high-frequency discharges
1090 *M S Naidu and A N Prasad* · Diffusion and drift of electrons in SF_6
1096 *J Berghmans* · Stability of a gas–liquid interface and its relation to weld pool stability
1106 *A W Palmer and H House* · A statistical analysis of the light pulses emitted before electrical breakdown of a liquid dielectric
1111 *J K Nelson and P B McGrath* · The effect of stress-induced motion on the conduction current statistics of liquid dielectrics
1117 *D J Mellor and J R Travis* · Determination of ion species in a hydrogen corona discharge between concentric hemispheres (R)
1120 *J C Manaranche* · Application des cristaux liquides au controle nondestructif (R)

Structure and Mechanical Properties of Solids
1123 *H J Arnikar, P S Damle and B D Chaure* · 'Aquoluminescence' from γ-irradiated crystals: effect of isothermal annealing (R)

Electrical and Magnetic Properties of Solids
1127 *W L V Price* · Extension of van der Pauw's theorem for measuring specific resistivity in discs of arbitrary shape to anisotropic media
1133 *M C Lancaster* · AC electrical properties of evaporated cerous fluoride films
1146 *T L Tansley* · Temperature dependence of hole diffusion length from spectral response of Au–n^+ GaAs photodiodes
1153 *A E Guile* · Stored charges in relatively thin oxide films (R)
1157 *S Rafi Ahmad and D Walsh* · Photoelectric emission from metal surfaces (R)

Spectroscopy and Optical Properties of Solids
1160 *T Kodama* · An improved method for the calculation of the thickness and the optical constants of a thin film by ellipsometry
1164 *M J Rossiter, D B Rees-Evans and S C Ellis* · Thermoluminescence in lithium fluoride: apparent activation by manganese
1168 *V Čerić* · Investigation of DC electroluminescent characteristics of CdS : Cu powder phosphors (R)
1173 *V Čerić and Z Ogorelec* · Investigation of the AC electroluminescence of CdS : Cu powder phosphors (R)

Laboratory and Experimental Techniques
1177 *J Müller, B Singh and N A Surplice* · The gettering action of evaporated films of titanium and erbium

NO 7 JULY 1972

LETTERS TO THE EDITOR

L55 *Mino Green, W Gee, A Levy and P Ming* · Electrical changes in the surface region of chalcogenide glasses
L59 *E B Pattinson and P R Harris* · Secondary electron spectroscopy of polycrystalline silver

PAPERS AND RESEARCH NOTES

Electromagnetism
1185 *K Asano and A W Bright* · On the theory of charge collection in electrostatic generators
1199 *K Cornwell* · The thermoelectric potential of molten salt thermocells

Quantum Electronics, Quantum Optics
1212 *J P Lesieur, M C Sexton and D Veron* · Gain and visualization of the modes of a thermally stabilized HCN laser

Optics
1218 *C H Gooch and J J Low* · Matrix-addressed liquid crystal displays

Fluids, Plasmas and Gas Discharges
1226 *D Smith and I C Plumb* · An appraisal of the single Langmuir probe technique in the study of afterglow plasmas
1239 *L Harrison and J L Moruzzi* · Ion mobilities and ion–molecule reaction rates in oxygen
1249 *D A Price, J Lucas and J L Moruzzi* · Ionization in oxygen–hydrogen mixtures
1260 *S N Sen, R P Das and R N Gupta* · Spectral line intensity in a glow discharge in a transverse magnetic field
1267 *A A W M Garamoon and N A Surplice* · Secondary ionization coefficients in a low-pressure discharge in mercury vapour

Structure and Mechanical Properties of Solids
1274 *R D Adams and M A O Fox* · Measurement of the damping capacity and dynamic modulus of high-damping metals under direct cyclic stresses
1284 *C A Brookes, P Green, P H Harrison and B Moxley* · Some observations on scratch and indentation hardness measurements
1294 *A L Wingrove* · The forces for projectile penetration of aluminium
1304 *S C Lakkad, B B Miatt and B Parsons* · The thermal conductivity of a statistically isotropic heterogeneous medium
1321 *A F Pojur, B Yates and B T Kelly* · Thermal expansion at elevated temperatures: III—A hemispherical laminar composite of pyrolytic graphite, silicon carbide and its constituents between 300 and 800 K

Electrical and Magnetic Properties of Solids
1330 *G D Pitt, J H McCartney, J Lees and D A Wright* · The electrical and phase properties of Hg_3Te_3–In_2Te_3 alloys to high pressures
1334 *W Heinle* · Instabilities in semiconductors with negative differential mobility
1349 *K Mehmet and M K McPhun* · A microwave relaxation phenomenon in electron-beam-evaporated films of SiO
1352 *H J Goldsmid, N Savvides and C Uher* · The Nernst effect in Cd_3As_2–NiAs
1358 *D M Jacobson and M E Ertl* · Phonon drag thermomagnetism in bismuth at low temperatures
1368 *D K Das Gupta and M E Tindell* · Anomalous photo-induced current transients in polyethylene

Laboratory and Experimental Techniques
1374 *L G Carpenter and M J Watts* · Estimation of the conductance of channels for rarefied gas flow by means of an optical analogue

NO 8 AUGUST 1972

LETTERS TO THE EDITOR

L67 *T Geszti, I Gaal, T Deutsch and I Hangos* · Thermodynamical studies of halogen lamps
L69 *T E Gallon and J A D Matthew* · Comparison of x ray and electron impact ionization in Auger spectroscopy
L73 *A A Collyer and D J Ayres* · The generation of sound in a Rijke tube using two heating coils

PAPERS AND RESEARCH NOTES

Electromagnetism
1377 *R D Gibson and J Caldwell* · Optimization of field uniformity in the bore of a toroidal conductor
1389 *G Manson and G Hoffmann de Visme* · The frequency spectrum of Barkhausen noise

Electrodynamics and Particle Optics
1396 *A B Birtles* · Efficient charged particle trajectory calculations in time-varying laplacian fields

Quantum Electronics, Quantum Optics

1405 *D Andreou, A C Selden and V I Little* · Amplification of mode-locked trains with a liquid laser amplifier, Nd^{3+} : $POCl_3$: $ZrCl_4$

1418 *L J Challis and N F Price* · An investigation of a possible correlation between the laser output of a ruby rod and the chromous ion concentration (R)

Fluids, Plasmas and Gas Discharges

1422 *B Bowman* · Measurements of plasma velocity distributions in free-burning DC arcs up to 2160 A

1433 *E E Mainwaring and J D Swift* · Determination of the average electron energy in the positive column of an He–Ne glow discharge

1438 *P de Montgolfier* · Laser-induced gas breakdown : electron cascade

1448 *W Reininghaus* · The influence of secondary avalanches on the development of the cathode-directed streamer

1453 *R K Khanna and J Sobhanadri* · Dielectric properties of some acrylates (monomers) in the microwave region—I

1457 *B Singh, W G Chadband, C W Smith and J H Calderwood* · Prebreakdown processes in electrically stressed insulating liquids

1465 *R J Taylor and H House* · The electrohydrodynamic interaction of two injection diodes in a closed-loop liquid system

Electrical and Magnetic Properties of Solids

1469 *A S Yadav and R Parshad* · A formula for dielectric correlation between powder and bulk over wide ranges of permittivities and packing fractions (R)

1474 *R H Kulkarni and S G Ingle* · The dielectric constant of $KNbO_3$ single crystals under biasing conditions

1478 *C Uher and H J Goldsmid* · A comparison of thermomagnetic materials for use at room temperature

1489 *P B Coates* · Thermionic emission from photocathodes

Spectroscopy and Optical Properties of Solids

1499 *D Vučelić, M Šušić, M Huter and S Žegarac* · An NMR method for determination of the static magnetic susceptibility of solids without resonant nuclei (R)

Physical Chemistry

1502 *S K Mitra and T A Hall* · Application of a network method for nondispersive electron probe x ray analysis of thin films

Geophysics

1513 *C J Kok* · Spectral irradiance of daylight at Pretoria

NO 9 SEPTEMBER 1972

LETTERS TO THE EDITOR

L77 *M Nashed* · A method for the determination of the damping element characteristic

L79 *S C Haydon and O M Williams* · The experimental values of the Townsend first ionization coefficient in nitrogen at low values of E/p

L82 *J Ross Macdonald* · Comment on "Comments on 'Equilibrium space-charge distributions in semiconductors' "

L83 *D B Watson* · The polarity effect in the dielectric breakdown of NaCl

L85 *C J Kok* · Spectral irradiance of daylight for air mass 2

PAPERS AND RESEARCH NOTES

Mathematical Physics

1521 *T D Beynon* · The application of space-dependent multigroup theory to the analysis of neutron slowing down time experiments—II. Graphite and lead moderators

Mechanics, Elasticity, Vibration, Acoustics
1531 *C P Waddington* · Viscoelastic parameter determination from cyclic loading tests: application to adhesive flow in the microtensile testing of whisker crystals
1540 *F Powell and B W Quince* · The kinetics of impact in drop-weight experiments

Optics
1554 *D J Beninger and J P Marton* · Optical transmission microscopy of thin metal films on ceramic substrates

Fluids, Plasmas and Gas Discharges
1558 *Masataka Masuda, Yuji Tanaka and Takayoshi Okuda* · RF power absorption of a plasma produced by a coaxial plasma gun (R)
1561 *M J R Schwar and J R Bowen* · Measurements of the local velocity of shock and detonation waves by Schlieren interferometry of Doppler-shifted laser light
1576 *R J Sheppard* · An automated coaxial line system for determining the permittivity of a liquid
1588 *D A Swift* · The effect of temperature on the electrical characteristics of a vacuum gap (R)

Structure and Mechanical Properties of Solids
1592 *E G Youngs* · An approximate evaluation of surface concentration during one-dimensional diffusion with surface flux a function of time for concentration-dependent diffusivity
1596 *P J Goodhew* · Low-angle electron diffraction from fibres
1604 *M Celasco and P Mazzetti* · Magnetostriction of grain-oriented ferromagnetic cubic materials
1614 *J D Wilson and L R G Treloar* · The anisotropic thermal expansivity of oriented Perspex
1621 *M J Owen and P T Bishop* · The significance of microdamage in glass-reinforced plastics at macroscopic stress concentrators
1637 *M J Owen and R J Howe* · The accumulation of damage in a glass-reinforced plastic under tensile and fatigue loading
1650 *S K Chatterjee and S P Sen Gupta* · Some further considerations of the instrumental broadening correction in integral breadth analysis of cold-worked alloys
1654 *R P Gittins, D V Morgan and G Dearnaley* · The application of the ion microprobe analyser to the measurement of the distribution of boron ions implanted into silicon crystals

Electrical and Magnetic Properties of Solids
1664 *T J Lewis and D M Taylor* · Electrical conduction in iodine-doped polyethylene
1671 *L M Rogers and A J Crocker* · Transport and optical properties of the $Cd_xPb_{1-x}Se$ and $Mg_xPb_{1-x}Se$ alloy systems
1680 *K G Deshmukh and K Singh* · Domain structure in lithium niobate single crystals
1686 *R R Sutherland, J P A Williamson and R A Collins* · Electroforming and conduction in thin amorphous sulphide films
1692 *S G Patil* · Optoelectronic properties of copper-doped cadmium sulphide
1700 *J I B Wilson and J Woods* · Photovoltaic properties of single-crystal CdS–Cu_2S cells
1712 *R C G Leckey, R T Poole, J Liesegang and J G Jenkin* · Photoemission from electrodes in cold cathode glow discharges
1720 *J E L Bishop and P M Clay* · Magnetic domain interpretation of the angle and field dependence of permeability and loss in (110) [001] Si–Fe
1727 *K Kanaya and H Kawakatsu* · Secondary electron emission due to primary and backscattered electrons

Spectroscopy and Optical Properties of Solids
1743 *Masanobu Yamanaka, Tetsuo Kawamura and Masakazu Hineno* · An observation of the change in cooled-KDP temperature due to 337 μm incident radiation (R)

NO 10 October 1972

LETTERS TO THE EDITOR

L89 *M B Allenson, P G R King, M C Rowland, G J Steward and C H A Syms* · An improved GaAs transmission photocathode
L93 *D G Scotter* · The importance of pores on limiting the spin-wave transit time in polycrystalline ferrites

PAPERS AND RESEARCH NOTES

Electromagnetism

1745 *D Melville and P G Mattocks* · Stress calculations for high magnetic field coils

Electrodynamics and Particle Optics

1760 *D L Misell and P A Childs* · Deconvolution in two dimensions with particular reference to the electron microscope

1769 *W Baumgartner and J Schmid* · Space-charge saturation in channel electron multipliers

1780 *G Hibbert and J W Edington* · Experimental errors in combined electron microscopy and energy analysis

Quantum Electronics, Quantum Optics

1788 *J N Sandoe, P H Sarkies and S Parke* · Variation of Er^{3+} cross section for stimulated emission with glass composition

1800 *A F Gibson, C A Rosito, C A Raffo and M F Kimmitt* · An optical bridge for the assessment of mode-locked CO_2 lasers

1807 *A Maitland and J C L Cornish* · Electron temperatures in a segmented-metal argon-ion laser

Fluids, Plasmas and Gas Discharges

1815 *P Sakellaridis and B Hinopoulos* · Dielectric relaxation behaviour of some primary and secondary alcohols in heptane solutions

1824 *B Steverding* · Subsonic plasma motion in continuous laser light

1829 *H Amemiya and K Wiesemann* · Measurements of the contact potential between an emitting electrode and a probe within a plasma

1837 *D R Topham* · Convection in the constant pressure axial flow electric arc

1845 *D W Williams and W T Williams* · Effect of electrode surface finish on electrical breakdown in vacuum

1855 *R J Taylor* · A comparison of positive and negative apparent mobility measurements in hexane

1861 *Masataka Masuda, Yuji Tanaka and Takayoshi Okuda* · Parameters of a plasma produced by an electron cyclotron resonance heating plasma gun (R)

1865 *M Naoulo and Pham-Tu-Manh* · Dense plasma columns obtained from hollow-cathode discharges (R)

1870 *A B Ponter and A P Boyes* · Contact angles of deuterium oxide at the boiling point on copper and polytetrafluoroethylene surfaces at 10–770 Torr (R)

Structure and Mechanical Properties of Solids

1874 *Jaroslav Fiala* · Algebraic conception of the powder diffraction identification system

1877 *R D Adams* · Damping of ferromagnetic materials at direct stress levels below the fatigue limit

1890 *H Czichos* · The mechanism of the metallic adhesion bond

1898 *S Nichols* · The volume change associated with the modification of bismuth III at 42 kbar and 20°C

1902 *E M Wilks and J Wilks* · The resistance of diamond to abrasion

Electrical and Magnetic Properties of Solids

1920 *E H Rhoderick* · Comments on the conduction mechanism in Schottky diodes

1930 *A Thanailakis, D S Chan and D C Northrop* · Activation energy for the slow states in the aluminium–germanium contact

1937 *A G Katpatal and K G Deshmukh* · Surface-charge layers on ferroelectric $KNbO_3$ crystals

1945 *V V Serdyuk and J Woods* · Field-induced changes in the photoconductive properties of cadmium sulphide

1951 *U Bernini and F Porreca* · A magnetostriction measuring method

Spectroscopy and Optical Properties of Solids

1957 *G P Srivastava and P C Kothari* · Microwave Faraday effect in n type germanium

Laboratory and Experimental Techniques

1962 *H J Kamack* · A note on centrifugal particle size analysis

NO 11 NOVEMBER 1972

LETTERS TO THE EDITOR

L97 *G A Hill, D J James and S A Ramsden* · Breakdown thresholds in rare and molecular gases using pulsed 10·6 μm radiation
L100 *J B Abbiss, T W Chubb, A R G Mundell, P R Sharpe, C J Oliver and R E Pike* · Laser anemometry in an unseeded supersonic wind tunnel by means of photon correlation spectroscopy of backscattered light
L101 *A R Bayly and P D Townsend* · Glass machining by ion sputtering
L103 *M Masuzaki and T Tsuzuki* · An observation of rotational disturbances in a theta-pinch plasma

PAPERS

Electrodynamics and Particle Optics
1969 *E H Darlington and V E Cosslett* · Backscattering of 0·5–10 keV electrons from solid targets

Optics
1982 *K G Birch and Frances J Green* · The application of computer-generated holograms to testing optical elements

Nuclear Physics
1993 *S Morsy and M M R Williams* · Neutron flux perturbations due to infinite plane absorbers—III. Cosine flux

Fluids, Plasmas and Gas Discharges
2015 *R E King, D C Robinson and A J L Verhage* · The application of Fourier analysis of the azimuthal field distribution to a study of equilibria and instabilities in a toroidal pinch discharge
2026 *A E Prinn and B W Ricketts* · Experimental study of a continuous flow pinch
2037 *J Fletcher and D S Burch* · Experimental computation of the momentum transfer cross section in argon
2044 *R V Latham* · Microparticle charge acquisition and reversal at impact
2055 *P Suleebka and R S N Rau* · The mechanism of electrical breakdown of gases, initiated by a large number of electrons
2064 *J D Cross and P A Chatterton* · The microstructure of condensed H_2O films when exposed to electric fields and breakdown in vacuum

Structure and Mechanical Properties of Solids
2068 *D S Lin and H Wilman* · The surface structure of gallium after plastic deformation by unidirectional abrasion and by rolling
2075 *K G Kreider and K M Prewo* · Failure mechanisms in transversely loaded boron–aluminium
2087 *J Skinner and N Gane* · Sliding friction under a negative load
2095 *P A Childs and D L Misell* · Some aspects of the elastic plural scattering of electrons by atoms
2105 *J E Field and M A Zafar* · The effect of surface films on laser damage in glasses

Electrical and Magnetic Properties of Solids
2115 *M M Perlman and S Unger* · TSC study of traps in electron-irradiated Teflon and polethylene

Spectroscopy and Optical Properties of Solids
2124 *V M Bichard, P H Davies, K F Hulme, G R Jones and D S Robertson* · Electro-optic measurements on lithium germanate ($Li_2O.GeO_2$) and lead germanate ($5PbO.3GeO_2$)

NO 12 DECEMBER 1972

LETTERS TO THE EDITOR

L109 *B Lesigne et J Bensimon* · Variation particulière de la vitesse du gaz moteur dans un tube de choc à soufflage électromagnétique à deux gaz

PAPERS

Mechanics, Elasticity, Vibration, Acoustics
2129 *Y Ohashi, S Murakami and M Suzuki* · On the similarity conditions in the photorheological method of stress analysis

Electromagnetism
2145 *R E Eaves* · Electromagnetic boundary conditions for laminar regions

Fluids, Plasmas and Gas Discharges
2152 *S M L Prokopenko, J G Laframboise and J M Goodings* · Evaluation of an orifice probe for plasma diagnostics
2161 *D R Airey, J D Swift and C F Gonza* · Vapour density variations in a pulsed mercury discharge
2170 *B Capp* · The power balance in electrode-dominated arcs with a tungsten anode and a cadmium or zinc cathode in nitrogen
2179 *I Gallimberti* · A computer model for streamer propagation
2190 *H van der Piepen and W W Schroeder* · Electrode erosion in argon-jet-guided spark discharges
2195 *J A Greenwood* · An extension of the Grubin theory of elastohydrodynamic lubrication
2212 *M R Belmont and P E Secker* · The dependence on trace impurities of the observed carrier mobilities in n-hexane

Structure and Mechanical Properties of Solids
2215 *M G Bader and W H Bowyer* · The mechanical properties of thermoplastics strengthened by short discontinuous fibres
2226 *T J Wiles, J M Titchmarsh, G D W Smith, D A Smith, R F Morris, Suzanne Johnston, T J Godfrey and Penny Birdseye* · The fracture of field-ion microscope specimens
2231 *N G Burrow and R B Burtt* · Noble metal ion bombardment of polycrystalline metal surfaces

Electrical and Magnetic Properties of Solids
2252 *J le Gilchrist* · Rotating fields and flux pinning
2266 *G S Hobson* · Purity evaluation of n type GaAs LSA diodes from low-field temperature-dependent mobility
2273 *P G Shepherd, J Popplewell and S W Charles* · Ferrofluids containing Ni–Fe alloy particles in mercury

Spectroscopy and Optical Properties of Solids
2283 *T N Vasudevan and R S Krishnan* · Dispersion of the stress-optic coefficient in glasses
2288 *R F Miller, L S Julien and A J Taylor* · A computational method of obtaining optical constants from reflectance ratio measurements

Physical Chemistry
2292 *D J Neild, P J Wise and D G Barnes* · Measurement of ^{18}O concentration profiles using resonant nuclear reactions

2300 Corrigenda

2301 SUBJECT INDEX 1972

2314 AUTHOR INDEX 1972 (with titles)

Journal of Physics D: Applied Physics
1972, Volume 5

Subject index

Abrasion
resistance of diamond to 1902–19
Absorption: *see also Neutrons*
coefficients, elongated particles L1–4
water vapour in solids, and surface conductivity 1038–45
Acoustics
application to jet engine noise reduction 12–27
Acrylates
dielectric properties of 1453–6
Activation energy
aluminium–germanium contacts 1930–6
Adhesion
bonding, bimetallic 1890–7
critical stress model 359–72
Adhesives
viscoelastic flow in 1531–9
Afterglow plasmas: *see Plasmas*
Air
dry, ionization of L6–8
electrical breakdown 2055–63
pollution, effect on irradiance 1513–20
Alcohols
primary and secondary in heptane, dielectric properties 1815–23
Alloys
cold-worked FCC, integral breadth analysis 609–12
cold-worked, x ray profile analysis 1650–3
$Cd_x Pb_{1-x} Se$ and $Mg_x Pb_{1-x} Se$, transport and optical properties 1671–9
Hg_3Te_3–In_2Te_3, electrical and phase properties to high pressures 1330–43
Nb–Zr, superconducting properties 628–38
Ni–Fe in Hg, ferrofluids 2273–82
Ni–Si, energy changes in magnetization of 681–5
Aluminium
additives in ferrofluids 2273–82
film production by ion bombardment 756–66
ionimpression onto gallium arsenide 756–66
measurement of internal friction 777–81
projectile penetration 1294–303
Al–Ge contacts, activation energy 1930–6
B–Al, failure in 2075–86
Ammonia: *see Nitrogen compounds*
Amplifier
liquid laser 1405–17
Anisotropy
anisotropic material, resistivity in 1127–32
Annealing
effect on 'aquoluminescence' of crystals 1123–6
Anodes
anode root, effect of magnetic fields 701–9
Arcs, electric
axial flow, characteristics of 533–41
cathodic contact erosion due to 1068–76
column in forced axial convection 104–18
constant pressure flow 1837–44
consumable-electrode arc system 89–96
electrode-dominated, power balance 2170–8
motion, magnetically induced 580–8
plasma velocity distributions in 1422–32
steady-state characteristics in axial flows 533–41
vacuum, magnetic enhancement of ionic spectra 994–9
vacuum, response to current transients 119–32
with free anode root 701–9
Argon
breakdown threshold L97–9
capacitive breakdown in vapour 601–3
effect of supply frequency on Hg–Ar discharge 562–8
laser, effect of N_2 concentration 686–92
laser, segmented-metal 1807–14
momentum transfer cross section in 2037–43
shock collision in 449–60
Asperities
asperity height of surface 319–24
Atoms
angular spread of H_2 atom 69–78
influence on high-frequency discharges 1077–89
scattering of electrons 2095–104
Auger spectroscopy
backscattering effects 822–32
impact ionization L69–72

Barkhausen noise
frequency spectrum of 1389–95
Beta particles
β-conductive method, improvement of 1000–4
Birefringence
circular and linear measurements of 510–3
Bismuth
thermomagnetic measurements in 1358–67
triple point 799–802
volume change of Bi III 1898–901
Boron
ions in Si crystal, measurement 1654–63
B–Al failure mechanisms 2075–86
Boron compounds
borate glass, stimulated emission 1788–99
Breakdown, electric: *see also Discharges, electric; Electric strength*
air, divergent field geometries 730–40
argon and mercury 601–3
gases, cathodic contact erosion due to 1068–76
gases, development of cathode-directed streamer 1448–52
gases, influence of atoms and molecules 1077–89
gases, initiated by a large number of electrons 2055–63
gases, laser-induced 1438–47
gases, using pulsed radiation
impulse, in divergent field geometrics 730–40
insulating liquids 1457–69
liquid dielectrics 1106–10
polyethylene and tetrafluoroethylene 575–9
solid dielectrics in non-uniform fields 647–55
vacuum, by microparticle impact 2044–54
vacuum, cathode-initiated 280–90
vacuum, effect of electrode surface 1845–54
vacuum, effect of temperature 1588–91
vacuum, prebreakdown current 569–74
H_2O films exposed to 2064–7
NaCl L83–9

Cable
submarine telephone, dispersion in 225–7
Cadmium compounds
Cd_3As_2–NiAs, Nernst coefficient 1352–7
$Cd_xPb_{1-x}Se$, properties 1671–9
CdS, conduction and electroforming 1686–91
CdS, optoelectronic properties 1692–9
CdS, photoconductivity 1945–50
CdS : Cu, electroluminescence 1168–72, 1173–6
CdS–Cu_2S, photovoltaic cells 1700–11
Calcium compounds
calcium–vanadium garnet as microwave material 1031–7
CaF_2 dislocations 386–93
Carbon
fibre, electron diffraction 1596–603
fibre, electronic properties 169–79
fibre-reinforced material 2215–25
fibre-reinforced plastic 782–92
Carbon compounds
C_4F_8, electric transport, attachment and ionization in 741–6
CO_2 lasers: *see Lasers*
Carrier mobility
n-hexane 2212–4
Cathode ray tubes
for image displays 896–900
Cathodes
cold, SiC p–n junctions 656–66
contact erosion, due to gas breakdown arcs 1068–76
hollow, discharge 241–52
initiated vacuum breakdown, field-emitted current 280–90
poisoning 1829–30
Cellulose acetate
surface conductivity of 1038–45
Centrifuges
centrifugal particle size analysis 1962–8
Cerium compounds
cerous fluoride films, electrical properties 1133–45
Channel electron multiplier
space-charge saturation in 1769–79
Charged particles
trajectory calculations of 1396–404
Chromium
concentration in ruby lasers 1418–21
Coaxial systems
cable, dispersion in 225–7
line system, automated 1576–87
waveguide, screened surface waves in 1049–62
Coherence: *see Lasers*
Composite material
mechanical properties 331–43, 344–58, 2215–25
thermal expansion 1321–9
B–Al, failure in 2075–86
Conductance
channels, molecular flow estimation 1374–6

Conductivity, electrical: *see also Semiconducting materials; Semiconductors; Superconductors*
chalcogenide glasses L55–8
iodine-doped polythene 1664–70
liquid dielectrics 1111–6
poly (ethylene terephthalate) L17–22
resistivity of diamond, effect of neutrons L40–2
resistivity, measurement of 1127–32
Schottky diode 1920–9
sulphide film 1686–91
surface, in solids 1038–45
surfaces, and water absorption 1038–45
Hg–Te–In alloy resistance 1330–43
Conductivity, thermal
isotropic heterogeneous medium 1304–20
Contact angle
deuterium oxide 1870–3
Contact, electrical
erosion, cathodic 1068–76
material, In–Hg 185–7
potential, measurement 1829–30
semiconductors 185–7
Convection
flow in constant pressure axial flow electric arc 1837–44
Convolution procedure
for determination of ^{18}O diffusion 2292–9
Copolymers: *see Polymers*
Copper
contact angle with deuterium oxide 1870–3
film removal 1046–8
hardness of 1284–93
Copper compounds
alloys, instrumental profile 1650–3
CdS doping 1692–9
CdS : Cu phosphors, electroluminescent characteristics of 1168–72, 1173–6
CdS–Cu_2S photovoltaic cells 1700–11
Corona discharge
ion species in 1117–9
tube, design 973–82
H_3, determination of ion species in 1117–9
Cracks
detection method after welding 1120–2
Crystals
growth, from aqueous solution 604–8
liquid, application to nondestructive testing 1120–2
liquid, matrix-addressed displays 1218–25
liquid, nematic, scattering in L25–9
powder diffraction identification 1874–6
rotation, reversal in melt growth 325–30
single, etching of dislocations in doped CaF_2 386–93
whisker, microtensile testing of 1531–9
α-SiC, etch hillocks 390–3
γ-irradiated, aquoluminescence 1123–6
CdS–Cu_2S photovoltaic cells 1700–11
KCl–KBr, formation of 767–73
$KNbO_3$, surface-charge layers 1937–44
NaCl, dissolution studies on 774–6
Si, measurement of boron ions 1654–63
Current, electrical
field-emitted, for cathode-initiated breakdown 280–90
prebreakdown in vacuum 569–74
vacuum arc response to 119–132
Cyclotron
electron, resonance heating 1861–4

Damping
capacity measurement 1274–83
element characteristic determination L77–8
ferromagnetic materials 1877–89
Daylight
spectral irradiance of L85–8 (C2300), 1513–20
Detonation
wave, velocity measurement 1561–75
Deuterium compounds
deuterium oxide, contact angle of 1870–3
Diamond
abrasion resistance 1902–19
electrical resistivity of L40–2
Dielectrics
acrylates, properties 1453–6
artificial, microwave Faraday rotation in, at room temperature 193–9
correlation between powder and bulk 1469–73
dimethylsulphoxide 589–600
dispersion, H_2O structure 589–600
electrical breakdown in non-uniform fields 647–55
homogeneous propagation in 1049–62
laser-induced damage in L13–6
liquid, conduction current statistics of 1111–6
liquid, determination of permittivity 1576–87
liquid, electrical breakdown 1106–10
liquid, electrohydrodynamic stability 747–52
loading in coaxial cables 225–7
particles, scattering by 476–86
protein powders 394–409
relaxation of alcohols in heptane 1815–23

submarine telephone cable 225–7
thin film, CeF_3, electrical properties 1133–45
thin film, SiO, microwave relaxation in 1349–51
tube, plasma column in L47–51
water 589–600
$KNbO_3$, dielectric constant of 1474–7
NaCl, electrical breakdown L83–4
Diffraction, x ray: *see x rays*
Diffusion
concentration-dependent 1592–5
electrons in gases 542–54
electrons in perfluoroalkanes 983–93
electrons in SF_6 1090–5
electron swarms 956–65
holes in GaAs 1146–52
magnetic field, into incompressible plasma 525–32
solutes, coefficient 297–309
Diodes
injection, electrohydrodynamic interaction 1465–8
purity assessment 2266–72
Schottky, activation energy 1930–6
Schottky, conduction in 1920–9
GaAs, LSA, purity evaluation 2266–72
GaP, efficiencies 803–9
Discharges, electric: *see also Arcs, electric; Breakdown, electric; Plasmas; Sparks, electric*
air, streamer propagation, computer model 2179–89
argon-jet-guided 2190–4
cathode-directed streamer, influence of secondary avalanches on 1448–52
characteristics of Townsend discharge, computation 966–72
gases at high E/p 956–65
glow, in transverse magnetic field 1260–6
glow, photoemission 1712–9
high-frequency, influence of metastable atoms and molecules on reignition of 1077–89
photoemission from electrodes 1712–9
plasma columns from 1865–9
transverse magnetic field 1260–6
He–Ne, electron energy in 1433–7
Hg, electron density gradients 314–8
Hg, low-pressure, hollow-cathode 241–52
Hg, low-pressure, ionization coefficients 1267–73
Hg–rare gas mixture 266–79
Hg, vapour density variations 2161–9
Hg–Ar, AC, effect of supply frequency on positive column 562–8
Dispersion
measurement in telephone cable 225–7
Domains
bubble, $YFeO_3$, by scanning electron microscopy 440–52
theory, derivation of magnetic parameters from L37–9
uniaxial materials, nucleation, effect of inclusion energy 200–2
$LiNbO_3$ crystals 1680–5
Si–Fe 1720–6
Doppler effect
optical beat, velocity measurement 481–95
shifting of laser light 1561–75
signals, measurement of L23–5

Elastic constants: *see also Stress*
MnF_2 160–1
Elastic films
tensile stresses in 359–72
Elastic parameters
liquids, determination 141–50
Elastico-viscous liquid
unsteady motion of sphere in 141–50
Elastohydrodynamics
lubrication, theory of 2195–211
Electrets
thin films 1153–6
Vateria Indica 1027–30
Electric fields
applied to macromolecules 297–309
intensity, in semiconductors 1000–4
trajectory of particles in laplacian fields 1396–404
Electric strength
Perspex 410–4
Electrical breakdown: *see Breakdown, electric*
Electrical conduction: *see Conductivity, electrical*
Electrification
from salt water on heated metals 753–5
Electrodes
consumable, in arc system 89–96
erosion, spark discharge in 2190–4
graphite, temperature distributions along 710–6
moving, behaviour of low-current arcs on 580–8
surface condition, effect on breakdown 1845–54
surface condition, microparticle charge requisition 2044–54
voltage in consumable-electrode arc system 89–96

Electroforming
in sulphide films 1686–91
Electrohydrodynamics: *see also Magneto-hydrodynamics*
closed-loop liquid system 1465–8
method for induction velometry 950–5
stability of dielectric liquids 747–52
Electroluminescence
CdS : Cu powder phosphors 1168–72, 1173–6
Electromagnetic field
boundary conditions, laminar 2145–51
Electron beams
in semiconductors, for measuring electric field intensity 1000–4
Electron diffraction
from carbon fibres 1596–603
Electron microscopes
calibration of 1046–8
deconvolution 1760–8
experimental errors 1780–7
Moiré fringes, calibration specimens 1046–8
Electron probe analysis
thin films 1502–12
Ni–Co alloys L9–11
Electron spin resonance
determination errors 673–5
Electrons
attachment, in water vapour and ammonia 514–24
Auger, electron-induced, backscattering effects 822–32
backscattering from solid targets 1969–81
cascade 1438–47
channel electron multipliers, space-charge saturation in 1769–79
cyclotron resonance heating 1861–4
density along mercury positive column 314–8
density measurement L47–51, 235–40
diffusion in gases 291–6, 542–54, 956–65
drift in oxygen 291–6
drift in SF_6 1090–5
energy, determination of 1433–7
energy distribution 1438–47
energy exchange processes on cathode surface 280–90
impact ionization, in Auger spectroscopy L69–72
injection of electrons into high magnetic fields 461–7
multiplication above breakdown 966–72
penetration and energy-loss theory of 43–58
perfluoroalkanes 983–93
photoemission in glow discharges 1712–9
scattering by atoms in thin films 2095–104
secondary electron emission 1727–42
temperatures, in lasers 1807–14
thermionic emission from photocathodes 1489–98
transport in C_4F_8 741–6
Electro-optics
germanates 2124–8
matrix-addressed liquid crystal displays 1218–25
$C_6H_4(NO_2)NH_2$ 667–9
Electrostatics
generator, charge collection in 1185–98
Ellipsometry
thin films 1160–3
Emission
radiation by elongated particles L1–4
Energy analysers
experimental error 1780–7
Energy loss
theory of electrons in solid targets 43–58
Energy transfer
from plasma torches 79–88
Erbium
ions, cross section 1788–99
films, gettering action 1177–84
Eutectics
artificial dielectrics, microwave 193–9
Cd_3As_2–NiAs, Nernst effect in 1352–7

Faraday effect
n-Ge, microwave effect 1957–61
Fatigue
glass-reinforced plastics 1637–49
Ferrimagnetics
energy changes in magnetization of 676–80
Ferrites
spin-wave transit time in L93–6
Ferrofluids: *see Iron alloys and compounds*
Ferromagnetic material
damping 1877–89
eddy-current effect 203–13
energy changes in magnetization of 415–39, 676–80
flux penetration 203–13
hysteresis 203–13
magnetostriction 1604–13
Fibres
carbon, electronic properties of 169–79
low-angle diffraction from 1596–603
reinforced material, mechanical properties 344–58, 221–525

reinforced materials, testing by ultrasonic resonance 782–92
tensile strength of thin composites 331–43
Field-ion microscopy
fracture of specimens 2226–30
Films, thin: *see Thin films*
Filters, interference
for the infrared 496–509
Fires
laser interferometer for fire research 1063–7
Flashover
values in vacuum 575–9
Flow pinch
continuous, in plasma 2026–36
Flowmeters, electromagnetic
equation, solution 33–6
sensitivity 717–29
Flux
magnetic, instability in superconductors 613–27
magnetic, penetration in ferromagnetic material 203–13
pinning in superconductor 2252–65
Fracture
field-ion microscope specimens 2226–30
Frequency analyser
Josephson junction as 180–4
Friction
internal, in Al 777–81
sliding, under negative load 2087–94
Fuses, electrical
performance under impulsive conditions 133–40

Gallium
surface structure after plastic deformation 2068–74
Gallium compounds
$Ga_xAl_{1-x}As$–GaAs–$Ga_xAl_{1-x}As$ lasers 2266–72
GaAs, aluminium films on 756–66
GaAs, LSA diode purity 2266–72
GaAs, photodiode, spectral response 1146–52
GaAs, transmission, photocathodes L89–92
GaP, diode, quantum efficiency 803–9
Garnets
substituted Ca–V garnets as potential microwave materials 1031–7
Gases: *see also Discharges, electric*
electron diffusion in 542–54
flow, arcs in the presence of 701–9
flow, effect on distribution of energy transfer in plasma torches 79–88
flow, rarefied, conductance of channels for 1374–6
interface with liquids, stability 1096–105
non-equilibrium ionization in 555–61
rare, mixture with Hg, discharge 266–79
Germanium
contact with aluminium, activation energy 1930–6
Faraday effect 1957–61
submillimetre wave modulation by free-carrier absorption L18–22
Germanium compounds
gemanates, electro-optic measurements on 2124–8
Gettering
action of evaporated films 1177–84
Glass
chalcogenide, electrical changes L55–8
fibre-reinforced materials, mechanical properties 2215–25
laser damage in 2105–14
machining L103–4
reinforced plastics, microdamage in 1621–36, 1637–49
stimulated emission 1788–99
stress-optic coefficient 2283–7
Glow discharges: *see Discharges, electric, glow*
Gold
Au–n^+GaAs photodiodes, spectral response 1146–52
Graphite
electrodes, axial temperature distribution 710–6
moderator 1521–30
silicon carbide composite, thermal expansion 1321–9

Hall effect
$Cd_xPb_{1-x}Se$, $Mg_xPb_{1-x}Se$ systems, determination of electrical properties 1671–9
Hg–Te–In alloy 1330–43
Halogen lamp
thermodynamics L67–8
Hardness
measurement, observations 1284–93
Heat transfer
theory 104–18
Helium
breakdown threshold in L97–9
He–Ne glow discharge, electron energy determination in 1433–7
Heptane
primary and secondary alcohols in 1815–23

Hexane
measurement of mobility 1855–60, 2212–4
Holes
diffusion in GaAs, temperature dependence 1146–52
Hollow cathode: *see Discharges, electric*
Hologram
computer-generated 1982–92
Hydrogen
atoms, formation by electron capture and dissociation 69–78
atoms, regular spread of 69–78
corona discharge, ion species in 1117–9
electrical breakdown 2055–63, L97–9
electron diffusion 542–54
spark discharge in 253–65
O_2–H_2 mixtures, ionization 1249–59
Hydrogen compounds
HCN laser, modes of 1212–7

Ignition
in drop-weight experiments 1540–53
Image eraser 896–900
Impact
kinetics in drop-weight experiments 1540–53
Indium compounds
amalgam for electrical contact on semiconductors 185–7
Induction
inductive circuit, fuses in 133–40
Infrared filters 496–509
Insulating liquid
prebreakdown processes in 1457–64
Interference
infrared filter 496–509
Interferometer
for fire research 1063–7
Schlieren, for measurement in shock waves 1561–75
Invar
magnetostriction 1951–6
Iodine
doping of polyethylene, electrical measurement by ion microprobe analyser 1654–63
Ion microprobe analyser
application to boron ions in silicon crystals 1654–63
Ionic spectra
magnetic enhancement of 994–9
Ionization
current multiplication L6–8
gases, experimental comparison of two theories 555–61
non-equilibrium, gases 555–61
non-uniform electric field L6–8
soot particles L4–6
Hg vapour, coefficients 1267–73
Townsend L79–81, 569–74
O_2–H_2 mixtures 1249–59
Ions
bombardment, for production of aluminium films 756–66
bombardment of metal surfaces 2231–51
boron in silicon, measurement 1654–63
chromous, in ruby laser 1418–21
mobility in oxygen 1239–48
nitrogen in glass machining L103–4
positive, in CO_2 lasers 468–75
reaction rates with molecules, in oxygen 1239–48
species, determination in hydrogen corona discharge 1117–9
sputtering, for glass machining L103–4
Iron alloys and compounds: *see also Steel*
$FeBO_3$, photomagnetic effect in 810–21
Ni–Fe in Hg, ferrofluids 2273–82
Si–Fe, domain theory 1720–6

Jet engines
noise reduction 12–27

Laminar region
electromagnetic condition 2145–51
Lamps
halogen, thermodynamics of L67–8
Langmuir probes
afterglow plasma study 1226–38
contact potential in a plasma, measurement 1829–36
determination of electron energy 1433–7
Lasers
action in $YAlO_3$ 228–34
anemometer L100–2
damage in glass 2105–14
Doppler signal L23–5
Doppler velocity measurement 1561–75
focusing in ADP and KD*P L13–6
induced gas breakdown 1438–47
interferometer for fire research 1063–7
Josephson junction response 180–4
light, plasma motion 1824–8
measurement of breakdown thresholds L97–9
ruby, chromium concentration 1418–21
spark gap triggering 97–103
Ar, segmented-metal, electron temperatures 1807–14
Ar, *Z*-pinch, effects of N_2
CO_2, analysis of positive ions 468–75
CO_2, damage to glasses, surface film effects 2105–14

CO_2, mode-locked, assessment by optical bridge 1800–6
CO_2, pressure dependence 901–3
CO_2, subsonic plasma motion 1824–8
$Ga_zAl_{1-z}As$–GaAs–$Ga_zAl_{1-z}As$ double heterostructure 2266–72
HCN, anodes, gain and visualization 1212–7
HCN, use in measurement of cooled-KDP temperature 1743–4
Nd^{3+} : $POCl_3$: $ZrCl_4$, amplification of anode-locked trains 1405–17
Nd^{3+} : $POCl_3$: $ZrCl_4$, characteristics 59–63
Lead
hardness 1284–93
in moderator 1521–30
Lead compounds
$Cd_zPb_{1-z}Se$ and $MgPb_{1-z}Se$, properties 1671–9
$5PbO.3GeO_2$, electro-optic measurement 2124–8
Light
partially coherent, resolution of a centrally obstructed circular aperture in 64–8
pulses, statistical analysis 1106–10
scattered, Doppler optical beat velocity measurement 481–95
scattering, effect of pulsed fields 297–309
scattering, microporous material 837–46
Liquids
gas–liquid interface, stability 1096–105
insulating, prebreakdown processes in 1457–64
Liquids, dielectric: *see Dielectrics*
Lithium compounds
LiF, thermoluminescence 1164–7
$Li_2O.GeO_2$, electro-optic measurement 2124–8
$LiNbO_3$, domain structure 1680–5
Lubrication
elastohydrodynamic 2195–211
Luminescence
'aquoluminescence' of crystals 1123–6

Magnesium compounds
$Mg_zPb_{1-z}Se$, electrical and optical properties 1671–9
Magnetic fields
coil, stress calculation 1745–59
diffusion into plasma 525–32
effect on arcs with free anode roots 701–9
effect on floating double-probe method 151–4
effect on ionic spectra 994–9
effect on minority carriers in semiconductors 639–46
glow discharge 1260–6
injection of electrons 461–7
single-layer cylindrical coil 1–5
toroidal conductor 1377–88
Magnetic susceptibility
solids without resonant nuclei 1499–501
Magnetization
derivation of magnetic parameters from domain theory and observation L37–9
ferromagnetics and ferrimagnetics, energy changes 676–80
ferromagnetics, energy changes 415–39
Ni–S alloy, energy changes 681–5
Si–Fe, domain interpretation 1720–6
Magnetohydrodynamics
induction velometry, a method for 950–5
Magnetostriction
ferromagnetic cubic materials 1604–13
measuring method 1951–6
Manganese
activation of LiF by 1164–7
Manganese compounds
MnF_2, elastic constants 160–1
Mechanical strength
whisker crystals 1531–9
Mercury
electron density along positive column 314–8
vapour, capacitive breakdown 601–3
vapour, condensation coefficient 2161–9
vapour, discharge, secondary ionization coefficients 1267–73
Hg–rare gas mixture, discharge 266–79
Hg–Ar, discharge, effect of supply frequency 562–8
Mercury compounds
Hg_3Te_3–In_2Te_3 alloys, electrical and phase properties to high pressures 1330–43
Metal surfaces
ion bombardment 2231–51
photoelectric emission from 1157–9
Metals
adhesion between, mechanism 1890–7
damping measurements in 1274–83
electrification from salt water on heated metals 753–5
Microanalysis
experimental error 1780–7
Microprobe analyser, ion: *see Ion microprobe analyser*
Microscopes, electron: *see Electron microscopes*

Microwaves
garnets as potential microwave materials 1031–7
measurements of electron density L47–51
relaxation in SiO films 1349–51
Molecules
influence on high-frequency discharges 1077–89
reactions with ions in oxygen 1239–48
scattering, estimation of 1374–6

Neodymium
Nd^{3+} : $POCl_3$: $ZrCl_4$ liquid lasers 59–63, 1405–17
Neon
electron energy in He–Ne discharge 1433–7
Nernst coefficient
Cd_3As_2–NiAs 1352–7
Neutrons
flux peturbations due to absorbing foils 6–11
flux peturbations due to infinite plane absorbers 1993–2014
irradiation of diamond L40–2
slowing down time in moderators 1521–30
thermal, transport near a moderator discontinuity 931–49
Nickel
magnetostriction 1951–6
Nickel alloys
Ni–Co, electron probe microanalysis L9–11
Ni–Fe, particles in ferrofluid 2273–82
Ni–Si, magnetization 681–5
Nickel eutectics
Cd_3As_2–NiAs, Nernst effect in 1352–7
Niobium alloys
Nb–25%Zr, low-field critical current densities 628–38
Nitroaniline
single-crystal, Pockels effect 667–9
Nitrogen
effect on argon laser 686–92
electrical breakdown 2055–63, L97–9
ionization coefficient L79–81
Nitrogen compounds
ammonia, electron attachment in 514–24
ammonium dihydrogen phosphate, laser-induced damage in L13–6
Noise
acoustic, in jet engines 12–27
Barkhausen, frequency spectrum of 1389–95
photomultiplier 915–30
Nondestructive testing
application of liquid crystals to 1120–2
Nuclear magnetic resonance
determination of static magnetic susceptibility 1499–501
Nuclear reactions
used for ^{18}O concentration measurements 2292–9
Nylon
glass-fibre-reinforced, mechanical properties 2215–25

Ohmic contact
semiconductors 185–7
Optical activity
in photoelasticity 883–95
Optical analogue
for estimation of conductance of rarefied-gas-flow channels 1374–6
Optical beating
of Doppler-shifted scattered light 481–95
Optical bridge
for CO_2 lasers 1800–6
Optical constants
method of obtaining 2288–91
thin films, by ellipsometry 1160–3
Optical elements
testing of 1982–92
Optical glasses
stress-optic coefficients in 2283–7
Optical properties
alloy systems 1671–9
Optical reflection
by thin films 847–51, 852–63
Optical transmission microscopy
thin films 1554–7
Optics: *see Light*
Optoelectronic properties
CdS 1692–9
Organic compounds: *see individual compounds*
Oxides
films, stored charges 1153–6
thickness, measurement by ^{18}O profiles 2292–9
Oxygen
drift and diffusion of electrons in 291–6, 2292–9
electrical breakdown 2055–63
ions, mobilities 1239–48
O_2–C_2H_2, shock-wave velocity measurement 1561–75
O_2–H_2, ionization in 291–6, 1249–59

Palladium
contacts, erosion 1068–76

Particles
charged, trajectory in time-varying laplacian fields 1396–404
electrical breakdown by impact 2044–54
dielectric, scattering by 476–80
elongated, scattering and emission of radiation by clouds of L1–4
size analysis 1962–8
soot, thermal ionization of L4–6
transmission through porous materials 793–8
Perfluoroalkanes
electrons in 983–93
Perfluorobutene-2
electron transport 741–6
Perfluorocyclobutane
electron transport 741–6
Permittivity
alcohols in heptane 1815–23
liquid, complex 589–600
liquid, determination 1576–87
powder and bulk 1469–72
protein powders 373–85
Perspex
electric strength 410–4
thermal expansion 1614–20
Phonons
drag in bismuth 1358–67
Photocathode
improved GaAs transmission L89–92
thermionic emission from 1489–98
Photoconductivity
photovoltaic properties of CdS–Cu_2S cells 1700–11
thallous sulphide 833–6
CdS 1945–50
Photoelasticity
optical activity 883–95
photoelastic pressure vessel, models, strains in 373–85
Photoelectric emission
from electrodes 1712–9
from metal surfaces 1157–9
photocurrents in polythene 1368–73
Photomagnetism
$FeBO_3$ 810–21
Photomultipliers
for detection of light pulses 1106–10
noise statistics 915–30
Photons
correlator for velocity measurement L100–2
diffusion model for light scattering 837–46
scattering, estimation 1374–6
Photorheology
method of stress analysis 2129–44
Photovoltages
measurement of surface-state density L52–4
Plasma: *see also Discharges, electric*
afterglow study 1226–38
column, electron density L47–51, 241–52
column, hollow-cathode discharge 1865–9
diagnostics, orifice probe for 2152–60
excitation multimode cavity 235–40
floating double-probe method, effect of magnetic field on 151–4
flow pinch 2026–36
gas flow through 310–3
heating of, by plasma gun 1558–60, 1861–4
incompressible, magnetic diffusion into 525–32
in laser light 1824–8
interaction with beam 241–52
low-velocity flows through 310–8
magnetic diffusion into 525–32
motion, Fourier analysis of 2015–25
pinch, continuous flow 2026–36
rotating, formation in a homopolar configuration 693–700
theta-pinch, rotational disturbances L105–7
torches, distribution of energy transfer from 79–88
velocity distribution measurement 1422–32
Plastic deformation
Ga 2068–74
Plastics
carbon-fibre reinforced, nondestructive testing of 782–92
glass-fibre-reinforced, damage in 1621–36, 1637–49
Polymers: *see also Plastics, Perspex*
polyacrylonitrile-based carbon fibres, electronic properties 169–79
polyethylene, carrier transport in 162–8
polyethylene, electrical breakdown in 575–9, 647–55
polyethylene, electrical conduction in 1654–63
polyethylene, phototransient current 1368–73
polyethylene, traps in 2115–23
polymethylmethacrylate, electrical breakdown of 647–55
polystyrene–polybutadiene copolymer, mechanical properties of 344–58
polyterephthalate, conductivity L17–8
polytetrafluoroethylene (PTFE), contact angle with deuterium oxide 1870–3
Pores
effect on spin-wave transit time L93–6

Porous materials
distribution of path lengths through 793–8
light scattering in 837–46
Potassium compounds
KAg_4I_5, thermoelectric properties 443–5
KBr, electrical breakdown 647–55
KCl–KBr mixed crystal formation 767–73
KDP, cooled-KDP temperature 1743–4
KD*P laser-induced damage in L13–6
$KNbO_3$ crystal, dielectric constant 1474–7
$KNbO_3$ crystal, surface-charge layer 1937–44
Powders
dielectric measurement 394–409
diffraction identification 1874–6
permittivity in 1469–72
Proteins
dielectric measurements on powder 394–409
Pressure vessel
model, stress distribution 373–85

Quantum electronics: *see Lasers*
Quartz
surface conductivity 1038–45

Radiation
by elongated particles L1–4
radiative transport, scattering efficiency factor 476–80
source mixer (Josephson junction) 180–4
Reflection
reflectance ratio measurements 2288–91
Relaxation
CeF_3 films 1133–45
SiO films 1349–51
Resistivity, electrical: *see also Conductivity, electrical*
van der Pauw's theorem for anisotropic media 1127–32
Rheology
photorheological method of stress analysis 2129–44
Rhodium
thermal conductivity of, at high temperatures 155–9
Ruby
lasers, Cr^{2+} concentration 1418–21

Salt: *see sodium compounds*
Scattering, light
changes due to electric field 297–309
microporous materials 837–46
nematic liquid crystals L25–9
Scattering, particles
efficiency factor for radiative transport 476–80
electrons by atoms 2095–104
photons and molecules, optical analogue experiments 1374–6
Scattering, radiation
by elongated particles L1–4
Schottky diodes: *see Semiconductors*
Selenium compounds
$Cd_xPb_{1-x}Se$ and $Mg_xPb_{1-x}Se$, properties 1671–9
Semiconductors: *see also individual names*
amorphous, a review 865–82
diffusion of minority carriers 639–46
electric field intensity in, measurement of 1000–4
equilibrium space-charge L82
instability 1344–8
junctions, p–n, SiC 656–66
ohmic contact 185–7
Schottky diodes, activation energy 1930–6
Schottky diodes, conduction in 1920–9
surface-state density by photovoltage measurements L52–4
switching behaviour L29–31
TRAPATT operation, threshold conditions of L43–6
Shock tubes
electrothermal, for Ar 449–60
variation of driver gas and driven gas L109–10
Shock waves
velocity measurement 1561–75
Silicon
crystals, measurement of boron ions in 1654–63
Silicon compounds
silicate glass, stimulated emission 1788–99
Ni–Si alloy, energy changes in magnetization of 681–5
SiC, etch hillocks on 390–3
SiC fibres, failure mechanisms 2075–86
SiC, p–n junction cold cathodes, properties of 656–66
Si–Fe, magnetic domain structure 1720–6
SiO films, dielectric properties 1349–51
Silver
films, removal 1046–8
polycrystalline, electron microscopy L59–65
Silver alloys
instrumental properties 1650–3
Sodium compounds
NaCl, dielectric breakdown L83–4

NaCl, dissolution studies on 774–6
NaCl, electrification from salt water on heated metals 753–5
NaCl, tellurium-doped thermoluminescence 446–7
NaCl, thermoelectricity of molten salt thermocells 1199–211
Sound
generation in Rijke tube L73–5
Sparks, electric: *see also Breakdown, electric*
electrode erosion 2190–4
spark channels, spectroscopic investigation of 253–65
spark gaps, triggering by laser 97–103
Spectra: *see also Spectroscopy*
daylight 1513–20, L85–8
intensity in glow discharge 1260–6
gaussian and lorentzian spin resonance lines 670–2
ionic, in interrupted vacuum arc 994–9
Er^{3+}, absorption and fluorescence 1788–99
Spectroscopy: *see also Spectra*
electron, secondary, of polycrystalline silver L59–65
spark channel 253–65
photon correlation spectroscopy L23–5
Steel
hardness 1284–93
Strain
photoelastic pressure vessel models 373–85
Streamers
cathode-directed 1448–52
propagation, computer model for 2179–89
Stress
analysis, photorheological method 2129–44
calculations for magnetic field coil 1745–59
corrosion cracking detection methods for 1120–2
cyclic, measurement 1274–83
distributions, in glass-reinforced plastics 1621–36, 1637–49
distributions, in pressure vessel models 373–85
stress-induced motion, effect on conduction current 1111–6
stress-optic coefficient in optical glass 2283–7
Sulphur compounds
sulphide films, electroforming and conduction in 1686–91
SF_6, diffusion and drift of electrons 1090–5
Superconductors
AC loss and flux instabilities in 613–27
flux pinning in rotating field 2252–65
Josephson junction as frequency analyser 180–4
low-field critical current densities in 628–38
superconducting-to-normal transition, surface impurities 1005–15, 1016–26
Nb–Zr 628–38
Surfaces
asperity heights of 319–24
conductivity in solids 1038–45
films, effect on laser damage 2105–14
finish of electrodes, effect on breakdown 1845–54
impurities, in superconductors 1005–15, 1016–26
metal, ion bombardment of 2231–51
metal, photoelectric emission from 1157–9
surface-charge layers on $KNbO_3$ crystals 1937–44
surface states, density of L52–4

Tantalum
impurities, superconducting-to-normal transition 1005–15, 1016–26
Teflon
surface conductivity 1038–45
traps in 2115–23
Tellurium alloys
Hg_3Te_3–In_2Te_3, electrical and phase properties to high pressures 1330–43
Tetrafluoroethylene: *see also Teflon*
flashover electrical breakdown across 575–9
Thallium
doping of NaCl, thermoluminescence 446–7
Thallium compounds
thallous sulphide, photoconductivity 833–6
Thermal conductivity
isotropic heterogeneous medium 1304–20
Thermal expansion
apparatus for measurement 1614–20
composite materials 1321–9
Perspex 1614–20
Thermal ionization
soot particles L4–6
Thermally stimulated currents in Teflon and polyethylene 2115–23
Thermionic emission
from photocathode 1489–98
Thermocells
molten salt 1199–211
Thermodynamics
efficiency of processes 28–42

halogen lamps L67–8
Thermoelectric properties
potential of molten salt thermocells 1199–1211
KAg_4I_5 443–5
Thermoluminescence
x-irradiated NaCl: 446–7
LiF 1164–7
Thermomagnetism
effects in bismuth 1358–67
materials, comparison of 1478–88
Thermoplastics
mechanical properties 2215–25
Thickness measurement
oxide film 2292–9
thin films 1160–3, 1554–7
Thin films
AC electrical properties of CeF_3 1133–45
calculation of thickness and optical constants 1160–3
elastic, deadherence in 359–72
electron probe analysis of 1502–12
gettering action of Ti and Er 1177–84
optical reflection and transmission 847–51, 852–63
oxide, stored charge in 1153–6
thickness measurement 1554–7
water, structure 2064–7
Al on GaAs 756–66
CdS, ZnS, electroforming and conduction 1686–91
SiO, microwave relaxation phenomenon 1349–51
Tin
additives in ferrofluids 2273–82
Titanium
films, gettering action 1177–84
Townsend
discharge, characteristics of 966–72
ionization coefficient L79–81, 569–74
Transmission
microscopy of thin films 1554–7
optical, by thin films 847–51, 852–63
GaAs photocathode 89–92
Transport
properties of alloy systems 1671–9
radiative, scattering efficiency factor 476–80
Triglycine selenate and sulphate
properties of 188–92
Tungsten
welding, stability of gas–liquid interface 1096–105

Ultrasonics
resonance method for nondestructive testing 782–92

Vacuum arcs: *see Arcs, electric*
Vapour discharges: *see Discharges, electric*
Velocity
distribution of conducting material 950–5
driver gas, measurement L100–2
fluids, by Doppler effect 481–95
shock and detonation waves 1561–75
Viscoelasticity
in microtensile testing 1531–9
Viscometer
falling-cylinder 214–24
Viscosity
elastico-viscous liquids 141–50

Water
electron attachment in 514–24
films, structure 2064–7
microstructure of layers 2064–7
structure, alterations 589–600
vapour adsorption in solids 1038–45
Waveguides
screened surface 1049–62
Waves
submillimetre, modulation by free-carrier absorption in Ge L18–22
Welding
crack detection 1120–2
stability of weld pools 1096–105

X rays
diffraction, powder diffraction identification 1874–6
emission in vacuum 569–74
ionization in Auger spectroscopy L69–72
spectra, analysis of cold-worked alloys 1650–3

Yttrium compounds
$YAlO_3$, continuous laser action in 228
$Y_{3-2x-a}Ca_{2x}Gd_aFe_{5-x-z}V_xIn_zO_{12}$ garnets as potential microwave materials 1031–7
$YFeO_3$, detection of bubble domains in 440–2

Zinc compounds
ZnS films, electroforming and conduction 1686–91

Author index with titles

(R) denotes a Research Note

Abbis J B, Chubb T W, Mundell A R G, Sharpe P R, Oliver C J and Pike E R: laser anemometry in an unseeded supersonic wind tunnel by means of photon correlation spectroscopy of backscattered light L100

Adams R D: damping of ferromagnetic materials at direct stress levels below the fatigue limit 1877

Adams R D and Fox M A O: measurement of the damping capacity and dynamic modulus of high-damping metals under direct cyclic stresses 1274

Ahtee M: *see* Pehkonen S 767

Airey D R, Swift J D and Gonza C F: vapour density variations in a pulsed mercury discharge 2161

Allen H G: the strength of thin composites of finite width, with brittle matrices and random discontinuous reinforcing fibres 331

Allenson M B, King P G R, Rowland M C, Steward G J and Syms C H A: an improved GaAs transmission photocathode L89

Amemiya H and Wiesemann K: measurements of the contact potential between an emitting electrode and a probe within a plasma 1829

Amson J C: electrode voltage in the consumable-electrode arc system 89

Andreou D, Little V I, Selden A C and Katzenstein J: the output characteristics of a *Q*-switched liquid laser system, Nd^{3+}: $POCl_3$: $ZrCl_4$ 59

Andreou D, Selden A C and Little V I: amplification of mode-locked trains with a liquid laser amplifier, Nd^{3+}: $POCl_3$: $ZrCl_4$ 1405

Antal K G: *see* Bitó J F 601

Arnikar H J, Damle P S and Chaure B D: 'aquoluminescence' from γ-irradiated crystals: effect of isothermal annealing (R) 1123

Arridge R G C and Folkes M J: the mechanical properties of a 'single crystal' of SBS copolymer—a novel composite material 344

Asano K and Bright A W: on the theory of charge collection in electrostatic generators 1185

Assabghy F Y I: *see* Robson D 169

Augis J A: *see* Gray E W 1068

Austin J M and Smith A L S: analysis of positive ions in CO_2 gas laser systems 468

Awakuni Y and Calderwood J H: water vapour adsorption and surface conductivity in solids 1038

Ayres D J: *see* Collyer A A L73

Bader M G and Bowyer W H: the mechanical properties of thermoplastics strengthened by short discontinuous fibres 2215

Balakrishnan K G: *see* Pillai P K 1027

Bansigir K G: *see* Bhagavan Raju I V K 774

Barber P B, Swift D A and Tozer B A: the formation of rotating plasmas in a homopolar configuration 693

Barlow H M: measurements of dispersion in dielectric-loaded submarine telephone cable 225

Barlow H M: screened surface waves of the dipole family in a coaxial waveguide 1049

Barnes D G: *see* Neild D J 2292

Barrault M R and Craig A D: magnetic diffusion into a moving cylindrical incompressible plasma 525

Barrault M R: *see* Kekez M M 253

Barton I J and Goodwin D W: continuous laser action in $YAlO_3$ 228

Baumgartner W and Schmid J: space-charge saturation in channel electron multipliers 1769

Bayly A R and Townsend P D: glass machining by ion sputtering L103

Bellau R V and Widdowson A E: some properties of reverse-biased silicon carbide p–n junction cold cathodes 656

Belmont M R and Secker P E: the dependence on trace impurities of the observed carrier mobilities in n-hexane 2212

Beninger D J and Marton J P: optical transmission microscopy of thin metal films on ceramic substrates 1554

Bensimon J: *see* Lesigne B L109

Berghmans J: stability of a gas–liquid interface and its relation to weld pool stability 1096

Berman R P: *see* Curzon A E 1046

Bernini U and Porreca F: a magnetostriction measuring method 1951

Bevir M K: the effect of conducting pipe connections and surrounding liquid on the sensitivity of electromagnetic flowmeters 717

Beynon J D E: an experimental comparison of two theories of non-equilibrium ionization in gases 555

Beynon T D: the application of space-dependent multigroup theory to the analysis of neutron slowing down time experiments—II. graphite and lead moderators 1521

Beynon T D and Moon J R: thermal neutron transport near a moderator discontinuity using the method of weighted residuals—I. theory 931

Bhagavan Raju I V K, Hari Babu V and Bansigir K G: impurity-enhanced dissolution studies on NaCl crystals 774
Bichard V M, Davies P H, Hulme K F, Jones G R and Robertson D S: electro-optic measurements on lithium germanate ($Li_2O.GeO_2$) and lead germanate ($5PbO.3GeO_2$) 2124
Birch J R and Jones R G: submillimetre wave modulation by free carrier absorption in germanium L18
Birch K G and Green F J: the application of computer-generated holograms to testing optical elements 1982
Birdseye P: *see* Wilkes T J 2226
Birtles A B: closed-form expressions for the magnetic field due to a single-layer cylindrical coil 1
Birtles A B: efficient charged particle trajectory calculations in time-varying laplacian fields 1396
Birtles A B and Travis J R: a method for the computation of characteristics of a Townsend discharge 966
Birtles A B: *see* Travis J R 973
Bishop J E L and Clay P M: magnetic domain interpretation of the angle and field dependence of permeability and loss in (110) [001] SiFe 1720
Bishop P T: *see* Owen M J 1621
Bitó J F and Antal K G: on the breakdown phenomena of capacitive discharges (R) 601
Blaney T G and Bradley C C: the Josephson junction as a frequency analyser and mixer of submillimetre radiation sources 180
Bolwijn P T and van Doorn R A: on the selective erasure of cathodochromic image displays 896
Bosnell J R and Thomas C B: switching in amorphous elemental semiconductors, Si and Ge L29
Bourgoin D, Volf E and Joly M: mesure de la permittivité complexe relative en ondes centimétriques de liquides fortement polaires: application à l'eau et au diméthylsulfoxyde 589
Bowen J R: *see* Schwar M J R 1561
Bowman B: measurements of plasma velocity distributions in free-burning DC arcs up to 2160 A 1422
Bowyer W H: *see* Bader M G 2215
Boyes A P: *see* Ponter A B 1870
Bradley C C: *see* Blaney T G 180
Bright A W: *see* Asano K 1185
Brignell J E: *see* Hewish T R 747
Brinkworth B J: a scattering efficiency factor for radiative transport 476
Brookes CA, Green P, Harrison P H and Moxley B: some observations on scratch and indentation hardness measurements 1284
Brown C G, Hancox N L and Reynolds W N: nondestructive testing of carbon-fibre-reinforced plastics—a study of an ultrasonic resonance method 782
Burch D S: *see* Fletcher J 2037
Burrow N G and Burtt R S: noble metal ion bombardment of polycrystalline metal surfaces 2231
Burtt R B: *see* Burrow N G 2231

Calderwood J H: *see* Awakuni Y 1038
Calderwood J H: *see* Singh B 1457
Caldwell J: *see* Gibson R D 1377
Campbell B, Messerle H K and Stokes A D: shock collision in preheated argon 449
Campbell R D: *see* Denton R E 852
Capp B: the power balance in electrode-dominated arcs with a tungsten anode and a cadmium or zinc cathode in nitrogen 2170
Carey R and Thomas B W J: the effect of inclusion energy on domain nucleation at inclusions in uniaxial materials 200
Carpenter L G and Watts M J: estimation of the conductance of channels for rarefield gas flow by means of an optical analogue 1374
Celasco M and Mazzetti P: magnetostriction of grain-oriented ferromagnetic cubic materials 1604
Čerić V: investigation of DC electroluminescent characteristics of CdS:Cu powder phosphors (R) 1168
Čerić V and Ogorelec Z: investigation of the AC electroluminscence of CdS:Cu powder phosphors (R) 1173
Chadband W G: *see* Singh B 1457
Chadwick J: *see* Lacklison D E 810
Challis L J and Price N F: an investigation of a possible correlation between the laser output of a ruby rod and the chromous ion concentration (R) 1418
Champion J V, Meeten G H and Tench M D R: method of obtaining concurrent measurements of circular and linear birefringence (R) 510
Chan D S: *see* Thanailakis A 1930
Chandra S, Lal H B and Shahi K: thermoelectric properties of high-conductivity solid electrolyte KAg_4I_5 (R) 443
Charles S W: *see* Shepherd P G 2273
Chatterjee S K and Sen Gupta S P: an integral breadth analysis for particle size and strain determinations in cold-worked FCC alloys 609
Chatterjee S K and Sen Gupta SP: some further considerations of the instrumental broadening correction in integral breadth analysis of cold-worked alloys 1650

Chatterton P A: *see* Cross J D 2064
Chaure B D: *see* Arnikar H J 1123
Chedzey H A and Robertson D S: a study of periodic crystal rotation reversal in melt growth 325
Chevalier J L, Peguin P, Perez J and Gobin P: frottement intérieur de l'aluminium très faiblement écroui 777
Childs P A and Misell D L: some aspects of the elastic plural scattering of electrons by atoms 2095
Childs P A: *see* Misell D L 1760
Chockalingam M J, Nagaraja Rao K, Rangarajan N and Suryanarayana C V: photoconductivity in thallous sulphide binder layers (R) 833
Christmas T M: laser-induced self-focusing in ADP and KD*P L13
Chubb T W: *see* Abbiss J B L100
Clay P M: *see* Bishop J E L 1720
Clement C F: the distribution of path lengths through a porous material 793
Coates P B: photomultiplier noise statistics 915
Coates P B: thermionic emission from photocathodes 1489
Collins A T: *see* Vance E R L40
Collins R A: *see* Sutherland R R 1686
Collyer A A and Ayres D J: the generation of sound in a Rijke tube using two heating coils L73
Cooper P V: *see* Craik D J L37
Cornish J C L: *see* Maitland A 1807
Cornwell K: the thermoelectric potential of molten salt thermocells 1199
Cosslett V E: *see* Darlington E H 1969
Cozens J R: *see* Metaxas A C 1077
Craggs J D: *see* Kekez M M 253
Craggs J D: *see* Naidu M S 741
Craig A D: *see* Barrault M R 525
Craik D J and Cooper P V: derivation of magnetic parameters from domain theory and observation L37
Crawford R A: *see* Neilson J H 28
Creeden J E, Fristrom R M, Grunfelder C and Weinberg F J: a large-area differential laser interferometer for fire research 1063
Crocker A J: *see* Rogers L M 1671
Cross J D and Chatterton P A: the microstructure of condensed H_2O films when exposed to electric fields and breakdown in vacuum 2064
Curzon A E, Berman R P and Luhman T S: a simple technique for removing (111) Cu or Ag single-crystal films from mica and their use in Moiré fringe electron microscope calibration specimens (R) 1046
Czichos H: the mechanism of the metallic adhesion bond 1890
Damle P S: *see* Arnikar H J 1123
Darlington E H and Cosslett V E: backscattering of 0·5–10 keV electrons from solid targets 1969
Das R P: *see* Sen S N 1260
Das Gupta D K and Tindell M E: anomalous photo-induced current transients in polyethylene 1368
Davies D K: carrier transport in polythene 162
Davies P H: *see* Bichard V M 2124
Davis J H: energy changes in magnetization of ferromagnetics in low and moderate fields 415
Davis J H: energy changes in magnetization of ferromagnetics and ferrimagnetics: an interpretation of three reported effects 676
Davis J H: energy changes in magnetization of a nickel–silicon alloy 681
Dearnaley G: *see* Gittins R P 1654
Denton R E, Campbell R D and Tomlin S G: the determination of the optical constants of thin films from measurements of reflectance and transmittance at normal incidence 852
Desai C C: *see* Patel A R 386
Deshmukh K G and Singh K: domain structure in lithium niobate single crystals 1680
Deshmukh K G: *see* Katpatal A G 1937
Deutsch T: *see* Geszti T L67
Dewhurst R J, Pert G J and Ramsden S A: picosecond triggering of a laser-triggered spark gap 97
van Doorn R A: *see* Bolwijn P T 896
Drain L E: coherent and noncoherent methods in Doppler optical beat velocity measurement 481
Drop P C and Polman J: calculations on the effect of supply frequency on the positive column of a low-pressure Hg–Ar AC discharge 562
Drop P C: *see* Polman J 266
Dubey M C: *see* Nayyar V P 64

Eaves R E: electromagnetic boundary conditions for laminar regions 2145
Edels H: *see* Paulus I 119
Edington J W: *see* Hibbert G 1780
Ellis S C: *see* Rossiter M J 1164
Ertl M E: *see* Jacobson D M 1358

Fiala J: algebraic conception of the powder diffraction identification system 1874
Field J E and Zafar M A: the effect of surface films on laser damage in glasses 2105
Fisher G L: *see* Reed S J B L9
Fleming I A, Gray D R and Rees J A: the drift and diffusion of electrons in oxygen containing traces of hydrogen 291

Fletcher J and Burch D S: experimental computation of the momentum transfer cross section in argon 2037
Folkes M J: *see* Arridge R G C 344
Fox M A O: *see* Adams R D 1274
Francis P D: multimode cavity for simultaneous plasma excitation and electron density measurements 235
Fristrom R M: *see* Creeden J E 1063

Gaal I: *see* Geszti T L67
Gale B: *see* Hunt R A 359
Gallimberti I: a computer model for streamer propagation 2179
Gallon T E: the estimation of backscattering effects in electron-induced Auger spectra 822
Gallon T E and Matthew J A D: comparison of x ray and electron impact ionization in Auger spectroscopy L69
Gane N: *see* Skinner J 2087
Garamoon A A W M and Surplice N A: secondary ionization coefficients in a low-pressure discharge in mercury vapour 1267
Garnsworthy R K: the pressure-dependent performance of a transversely excited pulsed CO_2 laser 901
Garton C G: corrigenda to 1971 paper 448
Gate L F: light scattering in microporous materials using a photon diffusion model 837
Gee W: *see* Green M L55
Geszti T, Gaal I, Deutsch T and Hangos I: thermodynamical studies of halogen lamps L67
Giblin R A: *see* Kanfer G T L43
Gibson A F, Rosito C A, Raffo CA and Kimmitt M F: an optical bridge for the assessment of mode-locked CO_2 lasers 1800
Gibson R D and Caldwell J: optimization of field uniformity in the bore of a toroidal conductor 1377
Gilchrist J le G: rotating fields and flux pinning 2252
Gillen C H and Young R W: beam–plasma interaction and the low-pressure mercury hollow cathode discharge 241
Gittins R P, Morgan D V and Dearnaley G: the application of the ion microprobe analyser to the measurement of the distribution of boron ions implanted into silicon crystals 1654
Gobin P: *see* Chevalier J L 777
Godfrey T J: *see* Wilkes T J 2226
Goldsmid H J, Savvides N and Uher C: the Nernst effect in Cd_3As_2–NiAs 1352
Goldsmid H J: *see* Uher C 1478
Gonza C F: *see* Airey D R 2161
Gooch C H and Low J J: matrix-addressed liquid crystal displays 1218
Gooch C H and Tarry H A: dynamic scattering in the homeotropic and homogeneous textures of a nematic liquid crystal L25
Goodhew P J: low-angle electron diffraction from fibres 1596
Goodings J M: *see* Prokopenko S M L 2152
Goodwin A R: *see* Selway P R 904
Goodwin D W: *see* Barton I J 228
Govinda Raju G R: *see* Rajapandyan S L6
Gray D R: *see* Fleming I A 291
Gray E W, Pharney J R and Augis J A: cathodic contact erosion due to short-duration gas breakdown arcs 1068
Green F J: *see* Birch K G 1982
Green I M and Hlawiczka P: surface impurities and the superconducting-to-normal transition—theory 1005
Green I M and Hlawiczka P: surface impurities and the superconducting-to-normal transition—experiments on tantalum 1016
Green M, Gee W, Levy A and Ming P: electrical changes in the surface region of chalcogenide glasses L55
Green P: *see* Brookes C A 1284
Greenwood J A: an extension of the Grubin theory of elastohydrodynamic lubrication 2195
Grundy P J: *see* Hothersall D C 440
Grunfelder C: *see* Creeden J E 1063
Grzybowski S: *see* Kuffel E 575
Guile A E: stored charges in relatively thin oxide films (R) 1153
Gupta R N: *see* Sen S N 1260

Hall P L: errors in the determination of ESR spin concentrations by numerical double integration (R) 673
Hall T A: *see* Mitra S K 1502
Hancox N L: *see* Brown C G 782
Hangos I: *see* Geszti T L67
Hari Babu V: *see* Bhagavan-Raju I V K 774
Harris P R: *see* Pattinson E B L59
Harrison L and Moruzzi J L: ion mobilities and ion–molecule reaction rates in oxygen 1239
Harrison P H: *see* Brookes C A 1284
Hart S and Stevenson R W H: the elastic constants of manganese fluoride (R) 160
Haydon S C and Williams O M: the experimental values of the Townsend first ionization coefficient in nitrogen at low values of E/p L79
Hearne K R, Nixon S A and Whittaker D: axial temperature distributions along thin graphite electrodes 710
Heinle W: instabilities in semiconductors with negative differential mobility 1344
Hepworth J K, Klewe R C and Tozer B A: a model of impulse breakdown in divergent field geometries 730

Hewish T R and Brignell J E: experimental consequences of the EHD stability criterion for dielectric liquids 747
Hibbert G and Edington J W: experimental errors in combined electron microscopy and energy analysis 1780
Hill G A, James D J and Ramsden S A: breakdown thresholds in rare and molecular gases using pulsed 10·6 μm radiation L97
Hill R, Richardson D and Wilson S: ohmic contacts on semiconductors using indium amalgam (R) 185
Hineno M: *see* Yamanaka M 1743
Hinopoulos B: *see* Sakellaridis P 1815
Hlawiczka P: *see* Green I M 1005
Hlawiczka P: *see* Green I M 1016
Hobson G S: purity evaluation of n type GaAs LSA diodes from low-field temperature-dependent mobility 2266
Hoffmann de Visme G: *see* Manson G 1389
Holah G D and Smith S D: multi-element mesh interference filters for the infrared 496
Holmes R: *see* Paulus I 119
Honeyman W N and Lee M K: properties of mixed crystals of triglycine sulphate and selenate 188
Hooper G: microwave measurement of electron density in a plasma column contained in a dielectric tube L47
Hothersall D C, Jones G A and Grundy P J: the detection of bubble domains in $YFeO_3$ by scanning electron microscopy 440
House H: *see* Palmer A W 1106
House H: *see* Taylor R J 1465
Howatson A W and Rowe R D: an arc column in forced axial convection 104
Howe R J: *see* Owen M J 1637
Hudson A S: substituted calcium–vanadium garnets as potential microwave materials 1031
Hulls K and McMillan P W: amorphous semiconductors: a review of current theories 865
Hulme K F: *see* Bichard V M 2124
Humphreys J F and Lawton J: arcs with free anode roots in the presence of gas flow and magnetic fields 701
Hunt R A and Gale B: a model of deadherence due to stresses in an elastic film 359
Hunter A J: on the distribution of asperity heights of surfaces 319
Huter M: *see* Vučelić D 1499

Illingworth R: the effect of small concentrations of nitrogen on an argon *Z*-pinch laser and the measurement of the inversion ratio 686
Ingle S G: *see* Kulkarni R H 1474
Ingram D J E: *see* Robson D 169
Inkinen O: *see* Pehkonen S 767
Irving J B: the effect of nonvertical alignment on the performance of a falling-cylinder viscometer 214

Jacobson D M and Ertl M E: phonon drag thermomagnetism in bismuth at low temperatures 1358
Jain S C, Sharma B B and Reddy B K: thermal conductivity of metals at high temperatures by the Jain and Krishnan method: VI—Rhodium 155
James D J: *see* Hill G A L97
Jenkin J G: *see* Leckey R C G 1712
Jennings B R: *see* Schweitzer J 297
Johnston S: *see* Wilkes T J 2226
Joly M: *see* Bourgoin D 589
Jones A R: scattering and emission of radiation by clouds of elongated particles L1
Jones G A: *see* Hothersall D C 440
Jones G R: *see* Bichard V M 2124
Jones R G: *see* Birch J R L18
Joshi R V and Joshi T R: thermoluminescence of x-irradiated NaCl: Tl (R) 446
Joshi T R: *see* Joshi R V 446
Julien L S: *see* Miller R F 2288

Kalymnios D: linear electro-optic (Pockels) effect in m-nitroaniline ($C_6H_4(NO_2)NH_2$) (R) 667
Kamack H J: a note on centrifugal particle size analysis 1962
Kanaya K and Kawakatsu H: secondary electron emission due to primary and backscattered electrons 1727
Kanaya K and Okayama S: penetration and energy-loss theory of electrons in solid targets 43
Kanfer G T and Giblin R A: threshold conditions of TRAPATT operation L43
Katpatal A G and Deshmukh K G: surface-charge layers on ferroelectric $KNbO_3$ crystals 1937
Katzenstein J: *see* Andreou D 59
Kawakatsu H: *see* Kanaya K 1727
Kawamura T: *see* Yamanaka M 1743
Kekez M M, Barrault M R and Craggs J D: spectroscopic investigation of the spark channel 253
Kelley B T: *see* Pojur A F 1321
Kelsey T: measurements of prebreakdown current and x ray emission in vacuum 569
Kent M: complex permittivity of protein powders at 9·4 GHz as a function of temperature and hydration 394
Kester J D and Pickett G F: application of theoretical acoustics to the reduction of jet engine noise 12
Khanna R K and Sobhanadri J: dielectric properties of some acrylates (monomers) in the microwave region—I 1453

Kimmitt M F: *see* Gibson A F 1800
King M J and Waters N D: the unsteady motion of a sphere in an elastico-viscous liquid 141
King P G R: *see* Allenson M B L89
King R E, Robinson D C and Verhage A J L: the application of Fourier analysis of the azimuthal field distribution to a study of equilibria and instabilities in a toroidal pinch discharge 2015
Klewe R C: *see* Hepworth J K 730
Kodama T: an improved method for the calculation of the thickness and the optical constants of a thin film by ellipsometry 1160
Kok C J: spectral irradiance of daylight for air mass 2 L85 (corrigenda 2300)
Kok C J: spectral irradiance of daylight at Pretoria 1513
Kontoleon N, Lucas J and Virr L E: the measurement of the ratio of radial diffusion coefficient to mobility and the amplification coefficient for electrons at high E/p 956
Kontoleon N: *see* Virr L E 542
Kothari P C: *see* Srivastava G P 1957
Kreider K G and Prewo K M: failure mechanisms in transversely loaded boron–aluminium 2075
Krishnan R S: *see* Vasudevan T N 2283
Kuffel E, Grzybowski S and Ugarte R B: flashover across polyethylene and tetrafluoroethylene surfaces in vacuum under direct, alternating and surge voltages of various waveshapes 575
Kulkarni R H and Ingle S G: the dielectric constant of $KNbO_3$ single crystals under biasing conditions 1474
Kumar A: *see* Srivastava G P 193
Kurup T N R K: *see* Pillai P K 1027

Lacklison D E, Chadwick J and Page J L: photomagnetic effect in ferric borate 810
Laframboise J G: *see* Prokopenko S M L 2152
Lakkad S C, Miatt B B and Parsons B: the thermal conductivity of a statistically isotropic heterogeneous medium 1304
Lal H B: *see* Chandra S 443
Lam Y W: *see* Taylor G W L52
Lancaster M C: AC electrical properties of evaporated cerous fluoride films 1133
Latham R V: microparticle charge acquisition and reversal at impact 2044
Lawton J and Mayo P J: the effect of secondary gas flow on the distribution of energy transfer from plasma torches 79
Lawton J: *see* Humphreys J F 701
Leckey R C G, Poole R T, Liesegang J and Jenkin J G: photoemission from electrodes in cold cathode glow discharges 1712
Lee M K: *see* Honeyman W N 188
Lees J: *see* Pitt G D 1330
Lesieur J P, Sexton M C and Véron D: gain and visualization of the modes of a thermally stabilized HCN laser 1212
Lesigne B and Bensimon J: variation particulière de la vitesse du gaz moteur dans un tube de choc à soufflage électromagnétique à deux gaz L109
Levy A: *see* Green M L55
Lewis T J and Taylor D M: electrical conduction in iodine-doped polyethylene 1664
Lewis T J: *see* Secker P E 580
Liesegang J: *see* Leckey R C G 1712
Lin D S and Wilman H: the surface structure of gallium after plastic deformation by unidirectional abrasion and by rolling 2068
Little V I: *see* Andreou D 59
Little V I: *see* Andreou D 1405
Low J J: *see* Gouch C H 1218
Lucas J: *see* Kontoleon N 956
Lucas J: *see* Price D A 1249
Lucas J: *see* Virr L E 542
Luhman T S: *see* Curzon A E 1046

McCartney J H: *see* Pitt G D 1330
Macdonald J Ross: comment on 'comments on "equilibrium space-charge distributors in semiconductors"' L82
McGrath P B: *see* Nelson J K 1111
McMilland P W: *see* Hulls K 865
McPhun M K: *see* Mehmet K 1349
Mainwaring E E and Swift J D: determination of the average electron energy in the positive column of an He–Ne glow discharge 1433
Maitland A and Cornish J C L: electron temperatures in a segmented-metal argon-ion laser 1807
Manaranche J C: application des cristaux liquides au contrôle nondestructif (R) 1120
Manson G and Hoffmann de Visme G: the frequency spectrum of Barkhausen noise 1389
Marton J P: *see* Beninger D J 1554
Masuda M, Tanaka Y and Okuda T: RF power absorption of a plasma produced by a coaxial plasma gun (R) 1558
Masuda M, Tanaka Y and Okuda T: parameters of a plasma produced by an electron cyclotron resonance heating plasma gun (R) 1861
Masuzaki M and Tsuzuki T: an observation of rotational disturbances in a theta-pinch plasma L105
Mathai K J: *see* Patel A R 390
Mathur P C: *see* Srivastava G P 193
Matthew J A D: *see* Gallon T E L69
Mattocks P G: *see* Melville D 1745
Mayo P J: *see* Lawton J 79

Mazzetti P: *see* Celasco M 1604
Meeten G H: *see* Champion J V 510
Mehmet K and McPhun M K: a microwave relaxation phenomenon in electron-beam-evaporated films of SiO 1349
Mehta B L: *see* Nayyar V P 64
Mellor D J and Travis J R: determination of ion species in a hydrogen corona discharge between concentric hemispheres (R) 1117
Melville D and Mattocks P G: stress calculations for high magnetic field coils 1745
Melville P H: AC loss and flux instabilities in single-component and double-component type II superconductors 613
Messerle H K: *see* Campbell B 449
Metaxas A C and Cozens J R: the influence of metastable atoms and molecules on the re-ignition of high-frequency discharges 1077
Miatt B B: *see* Lakkad S C 1304
Milledge H J: *see* Vance E R L40
Miller R F, Julien L S and Taylor A J: a computational method of obtaining optical constants from reflectance ratio measurements 2288
Ming P: *see* Green M L55
Misell D L and Childs P A: deconvolution in two dimensions with particular reference to the electron microscope 1760
Misell D L: *see* Childs P A 2095
Mitra S K and Hall T A: application of a network method for nondispersive electron probe x ray analysis of thin films 1502
de Montgolfier P: laser-induced gas breakdown: electron cascade 1438
Moon J R: *see* Beynon T D 931
Morgan D V: *see* Gittins R P . 1654
Morris R F: *see* Wilkes T J 2226
Morsy S and Williams M M R: Neutron flux perturbations due to absorbing foils 6
Morsy S and Williams M M R: Neutron flux perturbations due to infinite plane absorbers—III. Cosine flux 1993
Moruzzi J L: *see* Harrison L 1239
Moruzzi J L: *see* Parr J E 514
Moruzzi J L: *see* Price D A 1249
Mottram A: *see* Peaker A R 803
Moustafa M A K: *see* Nashed M 950
Moxley B: *see* Brookes C A 1284
Müller J, Singh B and Surplice N A: the gettering action of evaporated films of titanium and erbium 1177
Munakata C: improvement of the β-conductive method of measuring electric field intensity in semiconductors by a pulsed electron beam 1000
Mundell A R G: *see* Abbiss J B L100
Murakami S: *see* Ohashi Y 2129
Nagaraja Rao K: *see* Chockalingam M J 833
Naidu M S and Prasad A N: mobility, diffusion and attachment of electrons in perfluoroalkanes 983
Naidu M S and Prasad A N: diffusion and drift of electrons in SF_6 1090
Naidu M S, Prasad A N and Craggs J D: electron transport, attachment and ionization in c-C_4F_8 and iso-C_4F_8 741
Naoulo M and Pham-Tu-Manh: dense plasma columns obtained from hollow-cathode discharges (R) 1865
Nashed M: solution of the electromagnetic flowmeter equation L33
Nashed M: a method for the determination of the damping element characteristic L77
Nashed M and Moustafa M A K: a method for induction velometry 950
Nayyar V P, Mehta B L and Dubey M C: resolution of a centrally obstructed circular aperture in partially coherent light (R) 64
Neild D J, Wise P J and Barnes D G: measurement of ^{18}O concentration profiles using resonant nuclear reactions 2292
Neilson J H and Crawford R A: efficiencies of thermodynamic processes 28
Nelson J K and McGrath P B: the effect of stress-induced motion on the conduction current statistics of liquid dielectrics 1111
Nettleton M A: thermal ionization of soot particles in gases heated by reflected shocks to 2500 to 4000 K L4
Nichols S: a bismuth triple point at 41 kbar, 175°C 799
Nichols S: the volume change associated with the modification of bismuth III at 42 kbar and 20 °C 1898
Nixon S A: *see* Hearne K R 710
Northrop D C: *see* Thanailakis A 1930

Ogorelec Z: *see* Čerić V 1173
Ohashi Y, Murakami S and Suzuki M: on the similarity conditions in the photorheological method of stress analysis 2129
Okayama S: *see* Kanaya K 43
O'Kelly D: flux penetration in a ferromagnetic material including hysteresis and eddy-current effects 203
Okuda T: *see* Masuda M 1558
Okuda T: *see* Masuda M 1861
Oliver C J: *see* Abbiss J B L100
Owen M J and Bishop P T: the significance of microdamage in glass-reinforced plastics at macroscopic stress concentrators 1621
Owen M J and Howe R J: the accumulation of damage in a glass-reinforced plastic under tensile and fatigue loading 1637

Page J L: *see* Lacklison D E 810
Palmer A W and House H: a statistical analysis of the light pulses emitted before electrical breakdown of a liquid dielectric 1106
Pang P H L: *see* Pinnington E H 994
Parke S: *see* Sandoe J N 1788
Parr J E and Moruzzi J L: electron attachment in water vapour and ammonia 514
Parshad R: *see* Yadav A S 1469
Parsons B: *see* Lakkad S C 1304
Patel A R and Desai C C: kinetics of the etching of dislocations in doped calcium fluoride single crystals (R) 386
Patel A R and Mathai K J: etch hillocks on carbon faces of α SiC (R) 390
Patil S G: optoelectronic properties of copper-doped cadmium sulphide 1692
Pattinson E B and Harris P R: secondary electron spectroscopy of polycrystalline silver L59
Paulus I, Holmes R and Edels H: vacuum arc response to current transients 119
Payne M F and Riviere A C: angular spread of hydrogen atoms formed by electron capture and dissociation of H^+, H_2^+ and H_3^+ in H_2, H_2O and C_8F_{16} at energies of 2·5 to 15 keV 69
Peaker A R and Mottram A: injection and quantum efficiencies of red-light-emitting gallium phosphide diodes 803
Peguin P: *see* Chevalier J L 777
Pehkonen S, Ahtee M and Inkinen O: formation of mixed crystals in equimolar KCl–KBr powder mixtures 767
Perez J: *see* Chevalier J L 777
Perlman M M and Unger S: TSC study of traps in electron-irradiated Teflon and polyethylene 2115
Pert G J: *see* Dewhurst R J 97
Pham-Tu-Manh: *see* Naoulo M 1865
Pharney J R: *see* Gray E W 1068
Pickett G F: *see* Kester J D 12
van der Piepen H and Schroeder W W: electrode erosion in argon-jet-guided spark discharges 2190
Pike E R: the application of photon correlation spectroscopy to laser Doppler measurements L23
Pike E R: *see* Abbiss J B L100
Pillai P K, Balakrishnan K G and Kurup T N R K: a study of the electret properties of *Vateria Indica* 1027
Pinnington E H and Pang P H L: magnetic enhancement of ionic spectra excited in the interrupted vacuum arc (R) 994
Pitt G D, McCartney J H, Lees J and Wright D A: the electrical and phase properties of Hg_3Te_3–In_2Te_3 alloys to high pressures 1330
Plumb I C: *see* Smith D 1226
Pojur A F, Yates B and Kelley B T: thermal expansion at elevated temperatures: III—a hemispherical laminar composite of pyrolytic graphite, silicon carbide and its constituents between 300 and 800 K 1321
Polman J, van der Werf J E and Drop P C: nonlinear effects in the positive column of a strongly modulated mercury–rare gas discharge 266
Polman J: *see* Drop P C 562
Ponter A B and Boyes A P: contact angles of deuterium oxide at the boiling point on copper and polytetrafluoroethylene surfaces at 10–770 Torr (R) 1870
Poole R T: *see* Leckey R C G 1712
Popplewell J: *see* Shepherd P G 2273
Porreca F: *see* Bernini U 1951
Pounder C: electrification from salt water on heated metals (R) 753
Powell F and Quince B W: the kinetics of impact in drop-weight experiments 1540
Prasad A N: *see* Naidu M S 741
Prasad A N: *see* Naidu M S 983
Prasad A N: *see* Naidu M S 1090
Prewo K M: *see* Kreider K G 2075
Price D A, Lucas J and Moruzzi J L: ionization in oxygen–hydrogen mixtures 1249
Price N F: *see* Challis L J 1418
Price W L V: extension of van der Pauw's theorem for measuring specific resistivity in discs of arbitrary shape to anisotropic media 1127
Prinn A E and Ricketts B W: experimental study of a continuous flow pinch 2026
Prokopenko S M L, Laframboise J G and Goodings J M: evaluation of an orifice probe for plasma diagnostics 2152
Pulfrey D L: the electrical breakdown of solid dielectrics in non-uniform fields 647

Quince B W: *see* Powell F 1540

Raffo C A: *see* Gibson A F 1800
Rafi Ahmad S and Walsh D: photoelectric emission from metal surfaces (R) 1157
Rajapandyan S and Govinda Raju G R: ionization current multiplication in a non-uniform electric field in dry air L6
Ramsden S A: *see* Dewhurst R J 97
Ramsden S A: *see* Hill G A L97
Rangarajan N: *see* Chockalingam M J 833
Rau R S N: *see* Suleebka P 2055
Reddy B K: *see* Jain S C 155
Reed S J B; Fisher G L: comments on 'an investigation of electron probe microanalysis corrections in nickel–cobalt alloys' L9
Rees J A: *see* Fleming I A 291
Rees-Evans D B: *see* Rossiter M J 1164

Reininghaus W: the influence of secondary avalanches on the development of the cathode-directed streamer 1448
Reynolds W N: *see* Brown C G 782
Rhoderick E H: comments on the conduction mechanism in Schottky diodes 1920
Rhoderick E H: *see* Taylor G W L52
Richardson D: *see* Hill R 185
Ricketts B W: *see* Prinn A E 2026
Riley J R: axial electron density gradients in steady-state and modulated mercury positive columns (R) 314
Riviere A C: *see* Payne M F 69
Robertson D S: crystal growth from aqueous solution by the Bridgman method 604
Robertson D S: *see* Bichard V M 2124
Robertson D S: *see* Chedzey H A 325
Robinson D C: *see* King R E 2015
Robson D, Assabghy F Y I and Ingram D J E: some electronic properties of polyacrylonitrile-based carbon fibres 169
Rogers L M and Crocker A J: transport and optical properties of the $Cd_xPb_{1-x}Se$ and $Mg_xPb_{1-x}Se$ alloys systems 1671
Rosito C A: *see* Gibson A F 1800
Rossiter M J, Rees-Evans D B and Ellis S C: thermoluminescence in lithium fluoride: apparent activation by manganese 1164
Rowe R D: *see* Howatson A W 104
Rowland M C: *see* Allenson M B L89

Sacher E: the DC conductivity of poly(ethylene terephthalate) at elevated temperatures L17
Sakellaridis P and Hinopoulos B: dielectric relaxation behaviour of some primary and secondary alcohols in heptane solutions 1815
Sandoe J N, Sarkies P H and Parke S: variation Er^{3+} cross section for stimulated emission with glass composition 1788
Sanger C C: *see* Secker P E 580
Sarkies P H: *see* Sandoe J N 1788
Sarma A V S S S R: *see* Srinath L S 883
Sato M: effect of a magnetic field on the floating double-probe method (R) 151
Savvides N: *see* Goldsmid H J 1352
Schmid J: *see* Baumgartner W 1769
Schroeder W W: *see* van der Piepen H 2190
Schwar M J R and Bowen J R: measurements of the local velocity of shock and detonation waves by Schlieren interferometry of Doppler-shifted laser light 1561
Schweitzer J and Jennings B R: transient scattering changes induced by pulsed sinusoidal electric fields 297
Scotter D G: the importance of pores on limiting the spin-wave transit time in polycrystalline ferrites L93
Secker P E, Sanger C C and Lewis T J: behaviour of low-current arcs on moving electrodes 580
Secker P E: *see* Belmont M R 2212
Selden A C: *see* Andreou D 59
Selden A C: *see* Andreou D 1405
Selway P R and Goodwin A R: the properties of double heterostructure lasers with very narrow active regions 904
Sen S N, Das R P and Gupta R N: spectral line intensity in a glow discharge in a transverse magnetic field 1260
Sen Gupta S P: *see* Chatterjee S K 609
Sen Gupta S P: *see* Chatterjee S K 1650
Serdyuk V V and Woods J: field-induced changes in the photoconductive properties of cadmium sulphide 1945
Sexton M C: *see* Lesieur J P 1212
Shahi K: *see* Chandra S 443
Sharma B B: *see* Jain S C 155
Sharpe P R: *see* Abbiss J B L100
Shepherd P G, Popplewell J and Charles S W: ferrofluids containing Ni–Fe alloy particles in mercury 2273
Sheppard R J: an automated coaxial line system for determining the permittivity of a liquid 1576
Singh B, Chadband W G, Smith C W and Calderwood J H: prebreakdown processes in electrically stressed insulating liquids 1457
Singh B: *see* Müller J 1177
Singh K: *see* Deshmukh K G 1680
Skinner J and Gane N: sliding friction under a negative load 2087
Smith A L S: *see* Austin J M 468
Smith C W: *see* Singh B 1457
Smith D and Plumb I C: an appraisal of the single Langmuir probe technique in the study of afterglow plasmas 1226
Smith D A: *see* Wilkes T J 2226
Smith G D W: *see* Wilkes T J 2226
Smith S D: *see* Holah G D 496
Sobhanadri J: *see* Khanna R K 1453
Srinath L S and Sarma A V S S S R: effects of stress-induced optical activity in photoelasticity 883
Srivastava G P and Kothari P C: microwave Faraday effect in n type germanium 1957
Srivastava G P, Mathur P C and Arun Kumar: microwave Faraday rotation in artificial dielectrics at room temperature 193
Stanley P: a determination of the effect of the relatively large strains in photoelastic pressure vessel models 373
Stevenson R W H: *see* Hart S 160
Steverding B: subsonic plasma motion in continuous laser light 1824
Steward G J: *see* Allenson M B L89
Stokes A D: *see* Campbell B 449

Stoneham A M: linewidths with gaussian and lorentzian broadening (R) 670
Suleebka P and Rau R S N: the mechanism of electrical breakdown of gases, initiated by a large number of electrons 2055
Surplice N A: *see* Garamoon A A W M 1267
Surplice N A: *see* Müller J 1177
Suryanarayana C V: *see* Chockalingam M J 833
Šušić M: *see* Vučelić D 1499
Sutherland R R, Williamson J P A and Collins R A: electroforming and conduction in thin amorphous sulphide films 1686
Sutton J and Ward D A: the determination of low-field critical current densities from magnetization data for Nb–25%Zr 628
Suzuki M: *see* Ohashi Y 2129
Swami R and Tantry B A P: effect of an intense magnetic field on the diffusion of minority carriers in semiconductors 639
Swift D A: the effect of temperature on the electrical characteristics of a vacuum gap (R) 1588
Swift D A: *see* Barber P B 693
Swift J D: *see* Airey D R 2161
Swift J D: *see* Mainwaring E E 1433
Syms C H A: *see* Allenson M B L89

Tanaka Y: *see* Masuda M 1558
Tanaka Y: *see* Masuda M 1861
Tansley T L: temperature dependence of hole diffusion length from spectral response of Au–n$^+$ GaAs photodiodes 1146
Tantry B A P: *see* Swami R 639
Tarry H A: *see* Gooch C H L25
Taylor A J: *see* Miller R F 2288
Taylor D M: *see* Lewis T J 1664
Taylor G W; Lam Y W and Rhoderick E H: comments on 'surface-state density by photovoltage measurements—II' L52
Taylor R J: a comparison of positive and negative apparent mobility measurements in hexane 1855
Taylor R J and House H: the electrohydrodynamic interaction of two injection diodes in a closed-loop liquid system 1465
Tench M D R: *see* Champion J V 510
Terada T: aluminium ionimpression onto gallium arsenide 756
Thanailakis A, Chan D S and Northrop D C: activation energy for the slow states in the aluminium–germanium contact 1930
Thomas B W J: *see* Carey R 200
Thomas C B: *see* Bosnell J R L29
Tindell M E: *see* Das Gupta D K 1368
Titchmarsh J M: *see* Wilkes T J 2226
Tomlin S G: more formulae relating to optical reflection and transmission by thin films 847
Tomlin SG: *see* Denton R E 852
Topham D R: the characteristics of axial flow electric arcs subject to pressure gradients 533
Topham D R: convection in the constant pressure axial flow electric arc 1837
Topham D R: corrigenda to 1971 paper 864
Townsend P D: *see* Bayly A R L103
Tozer B A: *see* Barber P B 693
Tozer B A: *see* Hepworth J K 730
Travis J R and Birtles A B: analysis of a hemispherical corona tube 973
Travis J R: *see* Birtles A B 966
Travis J R: *see* Mellor D J 1117
Treloar L R G: *see* Wilson J D 1614
Tsuzuki T: *see* Masuzaki M L105

Ugarte R B: *see* Kuffel E 575
Uher C and Goldsmid H J: a comparison of thermomagnetic materials for use at room temperature 1478
Uher C: *see* Goldsmid H J 1352
Unger S: *see* Perlman M M 2115

Vance E R, Milledge H J and Collins A T: the effect of heavy neutron irradiation on the electrical resistivity of diamond L40
Vasudevan T N and Krishnan R S: dispersion of the stress-optic coefficient in glasses 2283
Verhage A J L: *see* King R E 2015
Véron D: *see* Lesieur J P 1212
Virr L E, Lucas J and Kontoleon N: the measurement of the ratio of diffusion coefficient to mobility for electrons at low E/p 542
Virr L E: *see* Kontoleon N 956
Volf E: *see* Bourgoin D 589
Vučelić D, Šušić M, Huter M and Žegarac S: an NMR method for determination of the static magnetic susceptibility of solids without resonant nuclei (R) 1499

Waddington C P: viscoelastic parameter determination from cyclic loading tests: application to adhesive flow in the microtensile testing of whisker crystals 1531
Walsh B W: low-velocity flows through plasmas (R) 310
Walsh D: *see* Rafi Ahmad S 1157
Ward D A: *see* Sutton J 628
Waters N D: *see* King M J 141
Watson D B: the polarity effect in the dielectric breakdown of NaCl L83
Watson D B: electric strength of Perspex as a function of voltage rise time 410
Watt F: the crossed-field injection of medium energy electrons into high homogeneous magnetic fields 461
Watts M J: *see* Carpenter L G 1374

Weinberg F J: *see* Creeden J E 1063
van der Werf J E: *see* Polman J 266
Wheeler C B: the performance of electrical fuses under impulsive conditions: I—DC supplies 133
Whittaker D: *see* Hearne K R 710
Widdowson A E: *see* Bellau R V 656
Wiesemann K: *see* Amemiya H 1829
Wilkes T J, Titchmarsh J M, Smith G D W, Smith D A, Morris R F, Johnston S, Godfrey T J and Birdseye P: the fracture of field-ion microscope specimens 2226
Wilks E M and Wilks J: the resistance of diamond to abrasion 1902
Wilks J: *see* Wilks E M 1902
Williams D W and Williams W T: field-emitted current necessary for cathode-initiated vacuum breakdown 280
Williams D W and Williams W T: effect of electrode surface finish on electrical breakdown in vacuum 1845
Williams M M R: *see* Morsy S 6
Williams M M R: *see* Morsy S 1993
Williams O M: *see* Haydon S C L79
Williams W T: *see* Williams D W 280
Williams W T: *see* Williams D W 1845
Williamson J P A: *see* Sutherland R R 1686
Wilman H: *see* Lin D S 2068
Wilson J D and Treloar L R G: the anisotropic thermal expansivity of oriented Perspex 1614
Wilson J I B and Woods J: photovoltaic properties of single-crystal CdS–Cu_2S cells 1700
Wilson S: *see* Hill R 185
Wingrove A L: the forces for projectile penetration of aluminium 1294
Wise P J: *see* Neild D J 2292
Woods J: *see* Serdyuk V V 1945
Woods J: *see* Wilson J I B 1700
Wright D A: *see* Pitt G D 1330

Yadav A S and Parshad R: a formula for dielectric correlation between powder and bulk over wide ranges of permittivities and packing fractions (R) 1469
Yamanaka M, Kawamura T and Hineno M: an observation of the change in cooled-KDP temperature due to 337 μm incident radiation (R) 1743
Yates B: *see* Pojur A F 1321
Young R W: *see* Gillen C H 241
Youngs E G: an approximate evaluation of surface concentration during one-dimensional diffusion with surface flux a function of time for concentration-dependent diffusivity 1592

Zafar M A: *see* Field J E 2105
Žegarac S: *see* Vučelić D 1499